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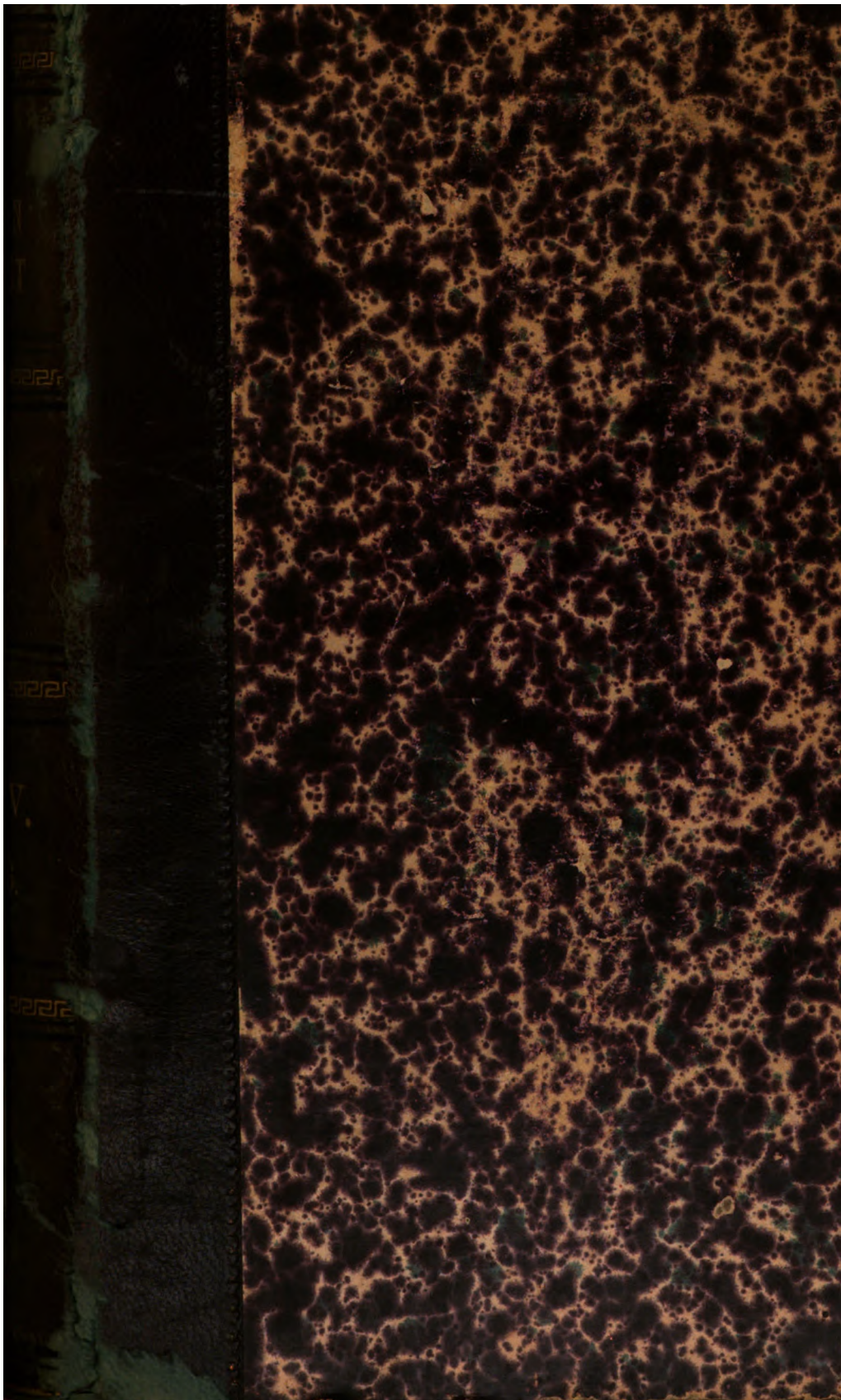
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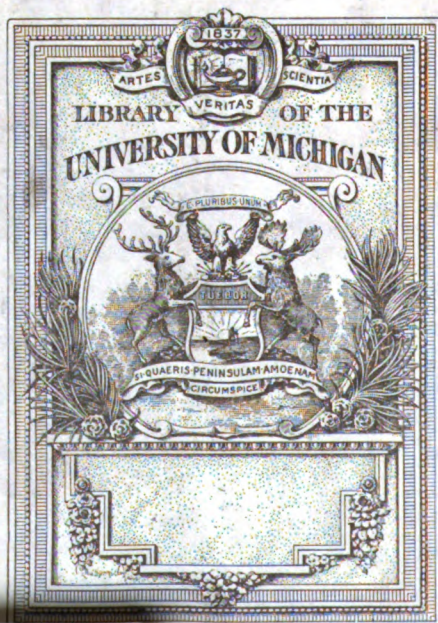
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# The American Therapist.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### A CASE OF MALARIA.

#### SOME TECHNIQUE FOR BLOOD EXAMINATION.

By ERNEST B. SANGREE, A.M., M.D.,

Assistant Professor of Pathology in the Medico-Chirurgical College, Philadelphia.

Some time since a medical friend consulted me as to the probable cause of occasional severe and long continued headaches which annoyed him, and which had heretofore resisted treatment. Shortly before this a patient had visited me, suffering in an almost similar manner, and as an examination of his blood with subsequent anti-malarial treatment, and complete recovery, proved his complaint to have been of that origin, I suggested to my friend that perhaps he also had malaria. Accordingly I put a drop of his blood under the microscope and was not surprised to find numbers of misshapen corpuscles, crenated, granular and irregular in outline, most of them containing the plasmodium malariae. In order to demonstrate to him what normal corpuscles ought to look like under that power, I made another slide of my own blood. To my astonishment, the corpuscles here shown resembled his, except that the proportion of bad to good was very much greater.

My first impression was that possibly I had been laying too much stress on these irregularities in the corpuscles, and that perhaps they did not mean so much as I had supposed. On carefully reviewing my physical condition, however, I found that it left much to be desired. Though having given the matter no particular thought, the fact recurred that for some

time past I had by no means been enjoying my usual meed of health, that I had suffered from general soreness and slight wandering pains, had felt strangely nervous and irritable, and in addition had been tiring so easily that only a very moderate amount of exertion almost exhausted me.

Though conscious of these facts, with that usual carelessness with regard to ourselves, I made no investigation into them, vaguely attributing the sensations to overwork, though where the overwork came in was a question.

Indeed, I must have looked below par, for some friends of mine, medical directors of an insurance company who had freely passed me as first-class two years ago, had recently refused me anything but a conditional policy.

At once I began taking from twelve to eighteen grains of quinine a day, just enough to keep my ears gently ringing, and in a week's time the change in my physical condition was most marked. The corpuscles had almost all returned to normal, and I felt my elasticity and sense of well-being fully restored.

From a large number of blood examinations on patients coming to me complaining of this or that indefinite series of sensations, I have found in so many instances the malarial parasite in greater or less numbers, and the cases yielding readily to anti-malarial medication, that I am convinced the condition is, in this locality at least, more prevalent than is commonly supposed.

We know it has come to be quite customary for the average layman when in a general state of malaise, to stock himself with quinine from the nearest drug store.

In many instances much benefit is derived from this home treatment, and I am of the opinion that such is the case because the condition is very often due to the malarial parasite.

Examination of the blood for this purpose is extremely simple and can easily be followed by anyone who has a microscope. My own method is to pass a rubber band around the distal phalanx of one of the fingers to impede the return flow of blood, and puncture the finger just back of the nail with a sharp pointed bistoury. Formerly I used a needle, but the bistoury causes less pain, is more certain to bring blood with a light touch, and usually requires no pressure to force out the blood.

The small drop of blood that oozes out is gently touched with a carefully cleaned slide, the latter slipped along for from one quarter to one-half an inch and then lifted up. This should be done without touching the finger so as not to crush any of the corpuscles by pressure. By this means at the point of starting and stopping a rather thickish mass of corpuscles is gotten, and between, usually a single layer. Over this is now laid a very thin and light cover-glass, generally with no hair between, as I do not find it necessary. Separate or massed corpuscles can now be studied, and the field gone over looking for crenated, misshapen or globular, granular looking corpuscles. Such, as a rule, contain the plasmodium in some one of its many morphological changes.

Alterations of form can often be observed even on the cold slide, but intercellular movements can easily be observed by means of the warm stage. One of these can be made by passing around the edge of a slide a light copper wire, and at one end of the slide twisting the two wires for about three inches. The slide can be held inside the wire loop by means of thread tied around, or very light wire, or may be simply pasted to the wire by slips of paper. On this slide the drop of blood can be put, and the latter kept moist when

about to dry by running under the cover glass a small drop of a one-half per cent solution of common salt. The whole slide can be kept at about blood heat by standing an alcohol lamp under the twisted end of the copper wire, and moving the lamp nearer to or farther from the microscope stage according to the amount of warmth desired or obtained.

An old professor of mine was fond of saying to us in the clinic room, with regard to certain conditions: "What is the use of guessing when we can know?" So I say with respect to this protean trouble, malaria: What is the necessity for wondering whether or not our patient has it, when in two minutes the question can be definitely answered.

2020 Arch Street, Philadelphia.

### *COPPER ARSENITE FOR INTESTINAL DISORDERS.*

By JOHN AULDE, M.D.

Nearly six years have now elapsed since I first brought to the attention of the profession the clinical value of copper arsenite for the relief of intestinal disorders, and if we are to judge of its merits by the fact that with comparatively few exceptions, nearly every manufacturing firm, large and small, has it "on the list," we may assume that its use is almost universal. Notwithstanding the modest claims put forward in its early history, the remedy has steadily gained ground among all classes of practitioners until to-day it stands without a rival in the treatment of all forms of disease which affect the small intestine. This position has been attained through its intrinsic merits, clinical evidence being the basis of its popularity instead of elaborate puffs and extensive advertising.

And yet there are certain "classes" in the profession who still remain obdurate and unwilling to admit its value or to investigate its claims at the bed-

side, because, forsooth, it has not been subjected to what is termed "scientific investigation," or in other words, physiological experimentation. But in view of the number of cases which have been reported in current literature covering the pathological changes occurring from poisoning from Paris-green, which is merely a modified form of copper arsenite (cupric aceto-arsenite), this flimsy exception may be set aside with the observation that in all such cases it has been shown post-mortem that the effects of the poison were manifested principally upon the small intestine. It must be evident to those who have taken the trouble to investigate these cases that the brunt of the injury falls upon the small intestine, and from our knowledge of physiology it is clearly shown that this poison manifests its effects in two distinct directions, namely, through its local and through its constitutional influence. The local action is produced by the poison which escapes from the stomach without being dissolved by the acid gastric juice; the constitutional effect is produced, we may suppose, through its elimination by the intestinal mucous membrane, and possibly, in part through the liver and other glandular structures. In this respect it compares with potassium chlorate, which is eliminated by the renal structures, and also by the salivary glands and buccal mucous membrane.

Having pointed out now, the method of absorption and elimination, and indicated the causes leading to local irritation, it remains to explain, in accordance with the demands of modern science, the *methodus sciendi* by which therapeutic effects are secured. And this brings us face to face with "*cellular-therapy*," a subject which I have so strongly urged upon the attention of the profession for the last seven years. When arsenite of copper is introduced into the system, no matter in what form or at what point, it comes into contact with the cellular-structures and enacts the rôle of an irritant. Poisoning is an indication that the functional activity of the cells is

destroyed; by lessening the amount of the dose, structural changes may be avoided and, instead, gentle stimulation produced, just the same as a tree falling upon a horse will kill him, while a small wand in the hands of a driver will stimulate him to greater activity.

In the treatment of diarrhea, for example, we have to deal with poisons generated within the intestine itself. Whether the micro-organisms are taken up by the circulation, or only their soluble products, need not be discussed at this time; it will be sufficient to remark that the functional activity of the cells is arrested or temporarily suspended. Neither is it deemed expedient to enter into the question as to the effect of introducing more poison when the sufferer from diarrhea is already overloaded with toxic products. The answer to this will come to us without asking, if we consider the means adopted by Nature for the relief of these cases. But what does Nature really do for these cases? Some will say that we should imitate Nature by helping her, and they will tell us of the great benefit to be derived from the free exhibition of salines, or possibly some other purgative—in ninety-nine cases out of a hundred calomel will be advocated. Although salines are successful in a percentage of the cases of diarrhea, they imitate Nature in but one particular, namely, by causing the *increased intestinal secretion*. On the other hand, some believe that opium and its preparations are useful, since they *arrest secretion*; and while this plan is also successful in a limited number of cases, it does not accord with our views as to antiseptics—and surely both plans, being diametrically opposed to each other, cannot be right.

If we interpret Nature properly, we shall learn that the increased secretion associated with and characteristic of diarrhea is something more than the mere pouring out of the watery portion of the blood to carry off toxic products; it is, indeed, a most efficient antiseptic which is so liberally discharged into the alimentary canal,



the antiseptic properties being due to the presence in the blood-serum of nuclein, secreted by the polynuclear white blood-corpuscles. Salines are successful only when the vitality of the patient is sufficient to maintain this natural antiseptic, *with the increased secretion artificially produced*. Opium and its preparations are effective when this antiseptic is produced in sufficient quantity to destroy the micro-organisms and their products *in the alimentary canal*.

Now, as it has been repeatedly demonstrated that the integrity of the human organism is maintained by reason of the normal resistance in the cells, and further, that the cells concerned in absorption in the intestinal tract exercise care, or we may say, show a special affinity, in the selection of pabulum, accepting some kinds while rejecting others, it naturally follows that stimulation of these cells will produce favorable therapeutic effects. Therefore, when copper arsenite is introduced into the system, and passes through the various stages of absorption and elimination—probably being absorbed and eliminated time and again before its final removal from the organism—this stimulation of the cells of the intestinal tract becomes a process which is, for all practical purposes, constant in its action. It is this peculiar property, in my opinion, which makes copper arsenite such a pre-eminently effective remedy in this particular affection, even setting aside the question as to whether or not it has any effect upon leucocytosis. Undoubtedly, the diarrhea itself has a tendency to produce a leucocytosis, and in all probability, copper arsenite as an irritant would have a further tendency in that direction. It may to a certain extent augment the production of nucleins in the body, acting as an antiseptic at the same time, but it could not be expected to supplant the nuclein, which is the normal product of the economy; it might, however, be regarded as an adjuvant, through its influence upon protoplasm, and indirectly upon the nervous mechanism.

From the preceding remarks it will be apparent that to be successful in the treatment of diarrhea and kindred affections, copper arsenite must be given in small doses at short intervals, thus gradually producing the desired amount of resistance in the cell-function; but the size of the dose and frequency of administration may be varied from time to time to suit the conditions present. For an adult, as large a dose as one one-hundredth of a grain may be given in a teacupful of hot water, to be repeated within an hour or two should it be required; in other cases, the same amount (gr.  $\frac{1}{100}$ ) can be distributed over a period of several hours. As a rule, however, I find that the plan originally suggested is general satisfactory. It is as follows: Dissolve a tablet containing one one-hundredth of a grain in four to six ounces of hot water, giving one teaspoonful every ten minutes for the first hour, then at longer intervals, say, half an hour or an hour.

Of course, it is not claimed that this treatment will cure all cases of intestinal disorders; but in the absence of hepatic complications, it will cure a large majority of them, and that too, without any of the disagreeable after-effects characteristic of opium and its preparations.

It will be noticed that in this brief communication, I have said nothing about intestinal antiseptics, because experience has taught me that Nature may be depended upon to produce the most appropriate antiseptic in the form of nuclein; and when nature fails or refuses to yield this product it can readily be artificially supplied.

1411 Walnut St., Philadelphia.

THE RED PARASOL.—The fashionable "fad" of the red parasol is now defended on the ground that it is an efficient freckle preventer—the actinic rays of the sun, which it is claimed are the cause of the pigmentation, being intercepted in passing through a red medium. The swell practitioner will not neglect this obvious hint; he will see to it that the ephelidal disfiguration is duly prevented—whenever the ruddy hue suits the complexion.—*Journal Amer. Medical Association*.

## NOTES ON ORGANIC EXTRACTS.\*

By J. LINDSAY PORTEOUS, M. D., F. R. C. S. Ed.  
Physician to St. Joseph's Hospital, Yonkers, N. Y.

Gentlemen:—At a meeting of this society a few months ago, I had the honor of reading a paper on "Myxedema, its History, Etiology, Pathology, and Treatment," and the object of the present remarks is to follow up as closely as I can the literature of the thyroid and other animal extracts, with a brief account of cases under my own observation. The case of myxedema alluded to in my previous paper, still continues in a satisfactory condition. I have seen two more cases, one in my own practice and one in the practice of Dr. Helm, of Sing Sing. The case I have treated lately did not respond so promptly to treatment as the one I reported in my last paper, but has now almost entirely recovered although the disease was of seven years duration. The case in Dr. Helm's practice, I believe has also been much benefited by the thyroid treatment.

The most conservative must now be thoroughly convinced that the cure of myxedema is an accomplished fact; as far as I can learn, there never has been a single failure when the diagnosis was correct, nor has there been one relapse excepting when the treatment was too soon abandoned.

I now propose to look back a few years and trace the source of this truly wonderful line of treatment. In 1869 Dr. C. E. Brown-Séquard delivered several lectures at the Paris School of Medicine endeavoring to prove that "all glands with or without excretory ducts, give to the blood, by an internal secretion, principles which are of great importance if not necessary." He showed this to be the case particularly for the kidneys, the supra-renal capsules and the sexual glands. In 1875 he made experiments at Nahant, near Boston, which confirmed the correctness of his theory. He thought that if human beings suffering from want of certain secretions

had the principle of the internal secretion of the gland they lacked, taken from a living animal and introduced into their system, important therapeutic effects would be obtained.

In 1889, in a paper deposited at the Biological Society, he announced that he had found the means to do so, namely by hypodermatic injections, obtained from the gland, by pressure, with the addition of water. In papers written conjointly with his assistant, Dr. d'Arsonval, during the spring and summer of 1891, an endeavor was made to prove that not only "glands, but all tissues have besides their influence on the blood, resulting from the interchange of nutrition, *an internal secretion.*" Within a very short period we have had abundant proof of the correctness of Brown-Séquard's theory, as witnessed in the cases of myxedema recorded in medical papers all over the world.

Myxedema is by no means the only disease which throws up the sponge to thyroid extract. In the *Edinburgh Med. Journal* for February, Dr. Thompson continues his remarks in a case of sporadic cretinism, the history of which had been given in the same journal for May, 1893. The patient at commencement of treatment was only 33½ inches in height. He had not grown for fourteen years; but during one year's treatment he grew 4¾ inches. Before treatment he had no idea of the time of the occurrence of events, but at the end of four months he could distinguish between yesterday and tomorrow. The permanent teeth rapidly appeared during the thyroid treatment, which, although he was 18 years old, had not been seen nor felt till this time.

I may here remark, that in the cases I have treated, and I find others have noticed the same, the muscular debility, especially in limbs, lasts a long time after using thyroid extract. Some authors note that a patient can get accustomed to the extract and can take a quantity without any bad effects, after a few weeks' treatment,

\*Read before Westchester Medical Association, May 15, '94.

that would at first cause discomfort; my experience is that the dose should be decreased rather than increased.

In the *British Med. Journal*, for March 24th, Dr. Byron Bramwell gives a very interesting account of a case of psoriasis, treated with thyroid extract. The patient had suffered from the disease for three months, and no treatment seemed to reach it. In order that a correct opinion could be formed of the exact condition of the patient, absolute rest was enforced and no other treatment for one week. At the end of this time 5 drop doses of Brady and Martin's fluid extract were administered per orem, once daily. At the end of seven days 10 drops were given; a week later 15 drops, and at the end of another week 20 drops. In two weeks the dose was increased to 5 drachms, corresponding to  $\frac{5}{8}$  of a sheep's thyroid daily. This dose was continued for two weeks, when it was changed to tabloids to the number of 5 daily, equal to  $\frac{1}{16}$  of a gland. No change appeared till the 6th day from the commencement of the treatment, when scales dropped off the back and abdomen. The following day the crusts on the head were breaking and cracking. The limbs were the last to show improvement. Four months' treatment was required before a cure was pronounced. Dr. Bramwell states that four months of the treatment is the largest time taken to cure any of the cases he had under his care.

Thyroid extract has been used to cure still another disease. Dr. Bramwell in the *British Med. Journal*, for April 14th, mentions two cases of lupus he had treated by it. He had noticed the improvement it made in the nutrition of the skin in myxedema, and therefore argued that some skin diseases might be benefited.

The rapid and marked improvement which he noticed in the cases of psoriasis, strengthened this belief. He also argued that as lupus is sometimes regarded as a tubercular disease of the skin, and knowing that persons suffering from

myxedema often die from tubercle, he concluded that the absence of the thyroid secretion from the juices and tissues of the body predisposes to tubercle, and further, that if the absence of the thyroid secretion predisposes to the production of tubercle, the converse proposition might prove true: namely, that thyroid extract may perhaps prevent the development of tubercle and have a beneficial influence upon tuberculous lesions which are already present and particularly upon tubercular lesions of the skin. Having so reasoned, he commenced treatment by giving a quarter of a lobe of a sheep's thyroid, raw; after second day he gave half of a lobe, which dose he continued for nine days; at the end of this period he gave five minims of the extract and half a lobe for several days; after this he gave one ounce of the extract and half a lobe on alternate days. This case was under treatment for over a year and had much improved, although at times, when the menstrual period was due or when the treatment was stopped for a month, the surface became red and fiery. Dr. Bramwell quoted other cases treated by himself and others, and all were benefited by the thyroid treatment. He suggests the possibility of the thyroid being beneficial in cases of internal tuberculosis.

I, some months ago, when reading up some of the reports of the pathology of myxedema, observed that myxedematous patients were liable to tuberculosis, and had died of it prior to the new treatment of that disease, and like Dr. Bramwell I argued that if thyroid extract had such beneficial effects upon the nutrition of the skin and nervous tissues, it might also prove useful in tubercle of the lungs. Soon I was consulted in a case which seemed to me favorable for the experiment.

M. S., aged 11 years, pale, excitable, and thin. One parent had died from consumption, and the other was delicate. The teeth were serrated; the joints large; nails filbert shaped. Temperature in the morning below normal, rising in

afternoon to 100° F.; persistent cough, especially in the morning. Expectoration; night-sweats; rather hurried respiration; crepitation at apex of right lung, audible in both inspiration and expiration; increased vocal resonance; prolonged expiration, and other signs of the commencement of tubercle. I commenced treatment by giving one grain of desiccated sheeps' thyroid three times daily. There seemed little effect produced during the first three days, but on the fourth day the temperature did not rise in the afternoon, the cough was not so persistent, the night-sweats not so profuse, and the appetite improved. The child is still under treatment, and is certainly improving in general health. The improvement may only be temporary, but I will carefully note the various phases of this most interesting case and may at some future time publish the record in full.

Bramwell suggests thyroid treatment in cancer, and mentions one case in which the tumor diminished and the general health improved. He says, "that if cancer is due to an organism the thyroid extract may help the tissues to resist or even to expel it, as I suppose it helps them to overcome and repel the lupus organism." The question may be asked, How does the extract of thyroid gland act on the various morbid conditions in which it has been found successful? Does it destroy or alter something that is detrimental to health, or does it supply something that is absolutely necessary to health? We know from experiments of Kocher and others that removal of the gland is followed by myxedema, and that administering the gland or its extract restores the patient to health again. These facts are pretty conclusive answers to the above questions. But is there any evidence that the thyroid secretes a substance necessary to health, or that it destroys something which is detrimental to health? We are told that there are two kinds of cells, in the thyroid, namely: the colloid and chief cells, as also transitional forms.

Hurthle says, that the production of secretion may be observed along with the preservation or destruction of cells. He considers that the destruction of the cells peculiar to itself furnishes a secretion different from that of the colloid material. He stimulated the nerves supplying the gland, but no change was revealed in the cells. He observed that if a large portion of the gland was removed the remaining portion, after ten days, showed increased secreting activity. He also found drops of colloid material in the cells themselves. He observed that if the common bile-duct of a dog was ligatured, and also the thoracic duct, there was a filling of the lymph spaces as well as of the gland epithelium with colloid material, whereas with ligature of the thoracic duct alone no such appearance was visible. From this he argued that the biliary constituents may stimulate the gland. The manner in which the secretion is carried off may be by rupture of the follicle wall and disappearance of the cells, the colloid getting into the lymph spaces. There must be another way by which the secretion may be carried off, because after ligature of the common bile-duct no such rupture was evident, yet colloid was also present in the lymph spaces. He found by intermittent injection of the lymph channels the injected material could be made to penetrate into the cavity of the follicle. Colloid material could also be seen between the cells. It is yet to be decided whether the colloid is taken up by the lymph vessels or veins. Tying the thoracic duct, however, does not lead to an accumulation of colloid in the gland.

I will now briefly give my own experience and that of others in the uses of some other animal extracts. No doubt, the action of the gastric juice renders inert some of the extracts. MacAllister has proved that thymus extract and the extract of medulla of bone lose their therapeutic action after having been administered by the mouth. Felkin writes that he has given brain extract both in tabloids and fluid form by

the mouth with excellent results in epilepsy, and the effects of heavy drinking; also in three cases of insomnia, two of severe debility and general want of nerve-power, and in four of general neurasthenia. This may be so, but I think that the experience of most experimenters goes to prove that desiccated powder and tabloids of the majority of organic extracts are inert when taken by the mouth; because, first, their efficacy is impaired by the action of the gastric juice, and secondly, because the glycerin which is used in the fluid preparations extracts some of the principles of the animal organs which cannot be otherwise obtained, and we know that glycerin cannot be desiccated. The question arises, Is there any danger in introducing organic extracts under the skin or into the blood? Such men as Wooldredge, Langendorff, Foà, Ewald, Bouchard, H. Rogers, and others, have shown that there is danger. On the other hand, Brown-Séquard, and his assistant, d'Arsonval, who invented sterilizing and filtering apparatuses, have proved the perfect innocuity of a large proportion of liquid organic extracts when prepared by their methods.

From the little experience I have had, I have seen no bad effects from using hypodermatically the fluid extracts as prepared by Brown-Séquard and d'Arsonval, by extracting the organic fluids without breaking up the albumoses.

A case of neurasthenic chlorosis which came under my care some time ago was that of a young man, aged 30 years. He had been under treatment more or less for eight years. Homeopathic, eclectic and regulars had each in turn been applied to, but no relief was given. His condition when I first examined him was as follows: Skin had a peculiar bluish color, was cold and clammy; pulse very weak and slow; stomach much enlarged; appetite good, but food caused much discomfort; could walk but a short distance; could not ride in cars or carriage, as the shaking gave him pain in stomach and head; when going up stairs did so on hands and knees,

always in dread of falling backwards. Had done no business for five years. Could not collect his thoughts. Felt a sensation of emptiness in his head. After trying numerous remedies without much effect, I resolved to give hypodermic injections of gray matter of the brain extract. I obtained from the laboratory of Messrs. Chaix & Remy, Paris, one case of twelve tubes, prepared according to Brown-Séquard and d'Arsonval's method, and also a DeBove syringe. On the 21st of February, 1894, I injected the contents of one tube, which amounts to 3 c.c. of fluid, of which only 1 c.c. is active substance. His pulse at the time was 84, irregular, intermittent and weak; temperature, normal. Four hours afterward the pulse was 82, strong and regular; temperature, normal. Says that within one hour after injection the feeling of emptiness in the head was decidedly better.

Feb. 24.—Reports that he has felt much clearer in his head than he has for months, till yesterday when the old sensation of emptiness in head slightly returned. Injected 3 c.c.

Feb. 28.—Says he feels much better; has slight color in his cheeks, and his lips, which for months were either colorless or pale-blue, are pink. No return of head symptoms. Pulse 82 and strong. He walks firmer, seems more cheerful than he has been for years. Injected 3 c.c.

From this time he has daily improved in general health and strength, can walk two or three miles a day, and hopes soon to be at work. I have not given him an injection since the 7th of April, but intend to resume the treatment at an early date. During the interval from the 7th April to the 10th of May he has felt more comfortable and stronger than he has done for seven or eight years. I have no hesitation in saying that this case has benefited much from the course of treatment.

Dr. Felkins' cases are extremely interesting and instructive. I must not, however, occupy your time further than to glance over a few of them. Case I, in

which he gave cerebral extract, was of a boy, aged eight years, suffering from pseudo-hypertrophic paralysis. When treatment commenced in Feb. 1892, he could hardly crawl upstairs; he took the extract till July 24th, when he could walk up and down stairs easily, and walk a mile and a half with ease. His medicine was omitted from July till October 21st, and he decidedly fell back.

Case II. Woman, 45 years, married, height 5 feet 6 inches, weight 100 lbs. Had been suffering for the last two or three years from loss of memory, pain in legs, inability to walk far without fatigue, nervous, hypersensitive, pale and markedly anemic. Half a drachm of brain extract was given twice daily, from April 5th to July 25th. At this time she was better in every way. Her weight now was 126 lbs., an increase of 26 lbs. Could walk 5 or 6 miles with ease. Since this date she has taken only two doses of brain extract a week, and is now almost well.

A case of epilepsy, reported by same physician showed rapid improvement, although the man, aged 34 years, had been a victim of the disease since he was seventeen. At the end of four months he was practically cured.

When Brown-Séquard first made public his experience of what was called the "Elixir of Life," physicians and laymen laughed at the idea, and some even suggested that he was in his dotage. Such is often the fate of the discoverer of any new departure. But subsequent experience has shown that his theory was to a great extent true. It is well known to travellers in Central Africa, that the natives and Arabs during the slave wars performed many most disgusting and revolting acts of cannibalism with a view of obtaining increased prowess. Dr. Felkin saw much of it during his travels. He believes that the ovary elaborates a product, which is necessary for the well-being of the woman; and that the orchitic fluid is not solely intended to fertilize the female, but "that it also contains a substance which, although

not necessary, is beneficial. It may be that it allays the orgasm in the female, amongst other uses." Such being the case, it may so happen that many cases of ovariectomy might be avoided, especially those where the ovaries are diseased, or where they are the supposed cause of hysteria, or some other nervous affection. In such cases, either cerebral or orchitic extract might take the place of this at all times hazardous operation. Dr. Felkin has cured two such cases by giving orchitic suppositories. Even cases of melancholia following removal of ovaries might be greatly relieved by giving organic extracts. Of course time must elapse, and many patients be treated, before we can be positive of permanent benefit in these cases.

I will now conclude, by giving a synopsis of the various methods of administering the organic extracts.

1st. By the mouth. This was at first supposed to have been suitable only in using the extracts of the thymus, thyroid, and medulla of bone; but others probably may be added, as grey matter and orchitic fluid.

2nd. Per rectum. This is as satisfactory method, but requires large doses, and sometimes irritation and inflammation prevent its continuance.

3rd. Injection into lungs, through the laryngeal glottis. As is known, this requires a very skillful hand; but when properly performed, it is stated that absorption is almost immediate, and that there is neither pain, coughing nor trouble of any kind.

4th. Hypodermically. This is the most convenient, and I think the most effective way of administering any of the extracts, with perhaps the exception of the thyroid, and with this extract we get the maximum of good when given by the mouth. If the liquids are absolutely sterilized and a De-Bove syringe, carefully rendered aseptic, used, we need not apprehend any damage of abscesses or septicemia resulting. The places best suited for the injections are



the abdomen, between the shoulders, or on the buttocks. The last I prefer. The whole length of the needle should be inserted under the skin and parallel to the surface, or if it causes pain insert vertically deep into the muscle.

Besides those I have mentioned, the following extracts have been used more or less successfully in various diseases:

*Renal Fluid*.—The phenomena of uremia, while due partially to the accumulation of certain substances in the blood, are probably also caused by the stoppage or diminished secretion of the internal fluid of the kidneys. Prof. Brown-Séquard believes that the internal secretion is of paramount importance, and in cases of diseases of these organs, considers it almost certain that good results will follow the injection of the renal fluid.

*The Fluid from the Pancreas*.—Diabetes will appear, as is well known, in dogs from whom the pancreas is removed. Besides the external secretion, the pancreas has an internal one, and it is stated that injections of the liquid from the organ have proved useful in several forms of diabetes, especially that dependent on a disease of the pancreas. It is asserted the orchitic fluid has more power against diabetes than the pancreatic fluid, and Prof. Brown-Séquard recommended the simultaneous use of these two liquids in all cases of glycosuria.

*Supra-Renal Fluid*.—We know that removal of the supra-renal capsules in animals causes death rapidly, and the blood of such animals acts as a powerful poison to others. When animals are dying from the removal of these glands, they are revived by the injection of the fluid extracted from healthy supra-renal capsules. This has suggested the use of the liquid in cases of Addison's disease, though the results have hitherto not been very satisfactory. The orchitic fluid has, however, been given more successfully in the treatment of this malady.

*Fluid from the Spleen and Medulla of Bone*.—This compound fluid has been

employed in leucocythemia and malarial fevers, which are due to diseases of the spleen; and also in anemia, debility and tuberculosis. It will probably be found of service in cases where some trouble exists in the formation of the blood.

*Muscular Fluid*.—Dr. d'Arsonval has found this liquid possessed of great power to give strength to weak muscles, and it has been successfully employed in man for this purpose.

I have endeavored to bring before your notice in as concise a manner as possible the success attending this line of treatment up to date. I fear I have trespassed too much on your time and patience, but the subject is so vast and the literature so extensive that I could not attempt to abridge more than I have done. Of late years surgery has been ahead in discoveries, but the past two years medicine certainly has taken the lead, and it is to be hoped will keep the proud position which belongs to her.

83 Warburton Ave., Yonkers, N. Y.

### AN UNUSUAL CASE OF PHTHISIS.

By THOMAS W. POOLE, M. D.

The presence of the tubercle bacillus in sputum has been accepted as diagnostic of the presence of pulmonary tuberculosis, or phthisis. Is it necessarily a fatal symptom? The chief interest of the case I am about to summarize, lies in the presence of the tubercle bacilli in considerable numbers in the sputum, their seeming disappearance, and the apparent recovery of the patient, with a subsequent re-appearance of the germs after several years.

In July, 1889, Mrs. K., aged 38, mother of a small grown-up family, and with a fair family history, was found suffering from cough and pulmonary hemorrhage, of which she had several previous attacks, but not of much severity. On the cessation of the hemorrhage (under treatment by appropriate doses of aconite, ergot and aromatic sulphuric acid), I examined her

sputum (the cough continuing), with the result of finding in it the tubercle bacilli in considerable numbers. The physical signs, which at no time were well marked, pointed to the right apex as the focus of disease. Here there was slight dulness, obscurity of the normal respiratory murmur, too audible heart sounds, and apparently fine moist rales before and behind. There was also some increase in pulse and temperature, and though of active habits she felt languid and easily fatigued.

The symptoms referred to were not of themselves sufficiently pronounced to justify the diagnosis of phthisis; but on finding the tubercle bacilli, I gave to the husband an unfavorable ultimate prognosis, and at my suggestion he took her to Toronto for further advice. Here the diagnosis was confirmed, the tubercle bacilli found by an expert, and a change of climate suggested; this, however, was not acted on.

The chief treatment, for a few weeks, at this time, so far as the lungs were concerned, consisted in capsules of creosote and iodoform, one grain each, three times a day, together with an inhalant composed of tinct. benzoin. comp. (3 ii), creosot. (3 iv), and ol. pini (3 ii); of the latter mixture a few drops were added to water heated in a suitable enclosed vessel over a small coal-oil stove, the vapor being conveyed by a tube to the mouth and inhaled. Whether the improvement which followed after a few weeks, was due to the treatment, varied from time to time, or the natural vigor of her constitution, or to other causes, I have never been quite sure. That she improved is certain; and on two occasions, late in the autumn of 1889, I sought for the tubercle bacilli in the sputum without finding them. She seemed so well that treatment and further examination of the sputum was discontinued.

Last year she was found to have a cardiac valvular defect and to be suffering considerably from intercostal

neuralgia, but improved under treatment so that these gave no further trouble. Some cough and expectoration continued, persistently, but were attributed by the family to cold from imprudences, and certain unhygienic conditions, such as irregular heating of the house and sometimes a damp cellar. She continued to do the chief part of the household work, and visibly improved in weight and general appearance, having never lost a fair proportion of flesh and *embonpoint*.

Quite recently, owing to some aggravation of the cough, she sent me a sample of her sputum, and I was surprised to find (on examination with a Leitz's one-twelfth-inch immersion lens) that it showed an abundance of tubercle bacilli. On visiting her to-day, in the forenoon, I found her at work in the flower-garden, apparently well nourished and fairly robust in appearance. An examination of the chest showed few well marked signs of disease. The respiratory sounds at the apices were rather highly pitched, or tubular, but no rales were heard. The pulse was sixty-eight (68) and the respirations twenty-two per minute. Her chief complaint was being easily tired, and inability to go so far from home on foot as formerly. She still does a large part of the ordinary work of the house, which is very considerable.

This seems a remarkable case. If I had not before me now, the mounted specimen of five years ago, showing the tubercle bacilli (of which I can count a hundred or more in a single field of the microscope), and if their presence had not been found also by another, I would be half inclined to suspect that I had been mistaken in my earlier observation and diagnosis. Are we to suppose that the bacilli have remained encapsuled or dormant for so long a period; or, if active, how is it the disease has made so little progress?

Lindsay, Ont., Canada.

THE TELEPHONE BUSINESS, says a *Sun* reporter, has developed an interesting fact that may check the growing popularity of aluminum. That metal has recently been used in telephone diaphragms, and there are signs that it corrodes under the action of the human breath. It is argued that if such corrosion results from that agency the metal may be injuriously affected by vegetable acids.

## ***A NEW METHOD FOR REDUCTION OF FRACTURES OF THE LOWER END OF THE RADIUS. \****

By THOMAS S. K. MORTON, M.D.

Professor of Surgery in the Philadelphia Polyclinic; Out-Patient Surgeon to the Pennsylvania Hospital; Assistant Surgeon, Orthopedic Hospital.

The particular method of reducing fractures of the lower end of the radius, to be described, has proved so satisfactory during the past few years in my services at the Pennsylvania and the Polyclinic Hospitals and elsewhere, and in the hands of others to whom I have from time to time demonstrated it, that I now feel justified in giving to it wider publicity. The method is as follows:

The surgeon stands in front of the patient and interlaces his fingers beneath the supinated wrist and palm of the injured member, so that his two index-fingers lie parallel crosswise beneath the lower end of the upper fragment of the radius. The palms of the surgeon's hands are then closed in upon the thenar and hypothenar portions of the patient's hand respectively, while the surgeon's thumbs rest parallel lengthwise upon the upwardly displaced lower fragment of the radius. The parts are thus firmly grasped by the surgeon while the following movements are made: The patient's wrist is excessively extended by carrying his hand upward. When hyper-extension has thus been secured the surgeon makes powerful traction upon the wrist in the line of hyper-extension. While this traction is maintained the hand is suddenly carried into full flexion, and at the same time powerful downward pressure upon the upwardly displaced lower fragment of the radius is made by the surgeon's thumbs opposed by the interlaced index-fingers beneath the lower end of the upper fragment.

The excessive extension of the first portion of the movement has always, so far in my experience, loosened or disen-

tangled the displaced lower fragment, while the subsequent traction, flexion, and direct thumb-pressure have not yet failed to accurately force the lower fragment into its proper position. Separated epiphysis of the lower end of the radius is likewise easily reducible by this manipulation. For comminuted or complicated or very oblique fractures, extension and moulding alone are called for in most instances.

Anesthesia is unnecessary for making a single effort at reduction by the proposed method. The patient does not anticipate what is coming, the two movements are made with lightning-like rapidity in a small fraction of a second, and, in nearly every case, perfect reduction has been accomplished before the patient realizes that he has been hurt. Should the manipulation fail to secure perfect reduction at the first attempt, I would not repeat the manœuvre until anesthesia had been induced, for the pain of repeating it would be intolerable. Failing in one effort, then, I would etherize and try again, first, this, and afterward, if necessary, any other method that seemed advisable to secure perfect reduction. But thus far in cases that have been seen within a week of the accident I have never had to anesthetize since evolving the method mentioned; all have been reduced at the first attempt.

In cases older than one week, with displacement persisting, I anesthetize before making any effort at reduction. The new method may then first be resorted to, and will often be found the best means of performing both refracture and reduction.

For making a diagnosis I have also found a modification of this method most useful. If the surgeon will take the hand and wrist in which fracture is suspected into his hands, as above described, and, while the thumbs press firmly upon the lower end of the radius or first row of the carpus, make a series of gentle, quick, short flexions and extensions of the joint—rocking it through an arc of perhaps 25

\* Read before the Philadelphia Surgical Society, May 9, 1894.

or 30 degrees above and below the forearm as a horizontal plane—he will be astonished at the ease with which crepitus of the bones of the joint and of any small or large bony or cartilaginous fragment will be elicited. And, best of all, the diagnosis of these obscure fractures about the wrist can thus, after some practice, be brought out without giving unbearable pain to the patient. Indeed, I have often in this way, by the most gentle and practically painless manipulation, been able to clear up the nature of intricate injuries about the wrist.

By practicing the method upon a normal wrist a sufficient degree of expertness can readily be acquired; by it joint crepitation can be brought out in any wrist. It is well, however, not to practice too much or too often upon the same extremity, as excessive stirring up of the joint contents might originate a synovitis.

In conclusion, the writer desires to say that he will be gratified to have reports of the experience of others who may be tempted to employ the method here put forth.

1510 Locust St., Philadelphia.

#### **A CASE OF ASCITIC DISTENTION OF THE ABDOMEN MISTAKEN FOR PREGNANCY. \***

By T. RIDGWAY BARKER, M.D.

The following case is reported in order to prove the importance, if not absolute necessity, of making a careful and thorough examination of all women pregnant, or supposed to be, before committing ourselves to a positive diagnosis.

In June, 1891, I first saw the patient, Mrs. M. N.; she was then eighteen years of age, white, mother of two children. There was no history of any miscarriages. Her general health was good and condition favorable for the development of the product of conception which she believed was present, menstruation having ceased in October of the preceding year. Inquiry elicited the fact that her menstrual flow up to that time

had been perfectly regular and unaccompanied by pain. Morning sickness proved very annoying for the first three months, but later passed away.

From inspection, abdominal palpation, and digital vaginal examination, the patient was judged to be some six months pregnant, and the date of confinement set for the early part of August. On July 27th, I confined Mrs. N., delivering her of a fine male infant which presented by the vertex.

Labor was accomplished without incident or difficulty, and the lying-in period presented no symptoms suggestive of any organic lesion of the kidney. In fact, it is fair to assume that at that time there did not exist any disease of that excretory organ.

The puerperant's pulse was 72 immediately after delivery, but the temperature was not taken.

I visited Mrs. N. for ten days, when attendance was discontinued, the patient being able to be up and move about her room. Mrs. N. was not seen again by me for over two years, when she called at the dispensary and stated that in the first week in January, 1893, she had suffered from a miscarriage.

The product of conception she passed she presumed was of about three months gestation. The cause of its expulsion I was unable to determine, but ascribed it to a catarrhal condition of the endometrium.

While carrying the embryo she had a slight flow of blood each month which she imagined was her menstrual flow, though she remarked at the time it was of shorter duration and more scanty than usual.

The patient failed to return on the day specified and was not seen again until March 6th, of this year. She stated on presenting herself at the clinic that some months after her last visit to the institution she imagined herself to be in the family way again and called to see a physician. The doctor, she reported, told her that he believed her view to be correct as to her condition, and that he considered her about four months pregnant, and that her confinement might be expected in December. No vaginal examination was made by him, however, nor did he palpate the abdomen, but based his diagnosis simply upon the results of inspection of the uncovered ventral region.

The breasts were exposed on this occasion and were found to be large, full, and globular. The veins were prominent and the areolæ well defined. Milk on pressure, she stated, exuded from the nipples as in former pregnancies. At this time her feet were considerably swollen and the edema tended to extend up the limbs.

Morning sickness was entirely absent. Leucorrhea was present, but no remedies were directed toward its treatment. At each monthly period, the patient stated, she had a scanty flow of blood, but thought nothing of it as she had much the same discharge in a former pregnancy. She did not again call on her physician, as she felt no anxiety, having passed through three confinements without difficulty.

When I saw Mrs. N., it was March 6th, nearly three months, I learned, after the date of her expected confinement. She was then suffering from nervous prostration incident in a large measure to the worry occasioned by her delayed labor, as she was afraid something was the matter.

\* Read before the Philadelphia Surgical Society, May 9, 1894.

Her abdomen, she stated, felt different from what it had ever done before. Inspection of the breasts showed them to present what one might almost say was a condition typical of pregnancy. Even the colostrum exuded on pressure from the orifices of the lactiferous ducts. On inquiry as to whether she felt fetal movements, she replied that she did at times, but very slightly. No bearing-down sensations, however, or pain had been experienced.

A glance at her abdomen showed markedly that it was not as prominent as one would have reason to expect it would be in a multipara at full term.

On request, Mrs. N. consented to lie down on the sofa in the dorso-recumbent position and as she proceeded to do so I was impressed with the fact that the abdomen at once became flattened and broader. This made me suspicious as to the presence of a fetus and I at once proceeded to palpate over the region of the supposed pregnant uterus. The abdominal walls were flabby and the intestines were in contact with them in front but not on the sides. Carrying the examining hand downward toward the pubis I found the uterus wholly within the true pelvic cavity. It seemed about normal in size and there was elicited no sense of tenderness.

Evidently there was no full-term fetus in that woman's abdomen. Having secured the patient's consent to a digital vaginal examination, I proceeded to make the same, subject to the rules of asepsis. Inspection of the external genitalia presented nothing characteristic. Passing my index finger up the vaginal canal to the cervix, I found it to be elongated, hard, and fissured. The os was small, and from it could be felt escaping a mucous discharge. A sound was passed into the uterus and its cavity made out to measure some three to three and one-half inches.

Search for shreds of membrane or other products of a late conception failed to be productive of any result. The distention of the abdomen was undoubtedly ascitic and not due to a natural growth of a pregnant uterus.

Further inquiry disclosed the fact that not only had there been for several months edema of the lower extremities, but also swelling of the face as well. This was especially noticeable about the eyelids.

The urine was passed in large quantities and very frequently. It was of a pale yellow or lemon color; sp. gr. 1.010; of acid reaction. No albumin present. Sediment composed of mucus. There had been for many months a gradual but none the less persistent loss of flesh.

The eyesight was very poor, so much so that the woman could scarcely read the newspapers. A kind of mist, as Mrs. N. expressed it, floated before her eyes. Headache was not a troublesome symptom, nor was any amount of pain referable to the loins made out. Sleep was troubled and the patient not infrequently awoke in a fright.

Inquiry as to the health of her parents brought forth the statement that her father died, under forty years of age, suddenly in the street, and that he had for some years suffered from dropsy. Her mother was still living and enjoyed the best of health. Mrs. N. has no brothers or sisters. It is not my purpose in this paper to enter into a discussion as to the nature of the kidney lesion, but to lay special stress upon the error in diagnosis which resulted simply from a failure to appreciate and apply the golden rules of obstet-

rics governing the diagnosis of pregnancy. Had the first practitioner who saw this woman not limited his examination to the breasts, but extended it to the abdomen and supplemented the same by a digital vaginal one, he would not have fallen into the error of diagnosing a case of kidney disease with ascites for one of pregnancy.

This case is a typical example of a "snap" diagnosis and only too clearly proves that the thorough way, which calls for inspection, palpation, auscultation, and digital vaginal examination, though more disagreeable, less brilliant, and tedious, is the only safe and satisfactory one in the long run.

Moreover, we see how little dependence is to be placed upon the patient's statements as to her subjective symptoms. Mrs. N. unhesitatingly told me that she did feel fetal movements, though they were slight, on the occasion of my first visit, three months after the date fixed for her confinement.

Examination, however, proved her sensations to be purely imaginary. She believed herself pregnant, and, therefore, knowing that she should have "quickened," she believed that she did recognize fetal movements.

While the mistake in diagnosis in this case did not result disastrously, yet it might under some circumstances have been made the basis of a suit for damages.

One may occasionally make some brilliant "snap diagnoses," but he may rest assured disaster will surely follow if this course is pursued for any length in time.

427 So. 16th St., Philadelphia.

KAPUTINE consists of acetanilide (anti-febrin) colored, says the *British Medical Journal*, and continues: It is an article which ought not be used by persons unacquainted with its properties and the probable effects it may produce. Like several other of the new synthetic remedies, it should be added to the poison schedule, and its sale placed under proper regulation in the hands of competent persons. It appears highly improper and dangerous that such an article should be puffed and supplied as a quack nostrum without any label indicative of its nature to warn persons who might be injuriously affected by its administration.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
1411 WALNUT ST., PHILADELPHIA, PA.

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## Editorial.

### The American Therapist.

The Index to Volume Two, which is included with this issue, has been carefully and thoroughly compiled, and will help to make the bound volume more available and valuable.

It is worth a close examination; and especially to new readers and to those who see this journal for the first time it will reveal more eloquently than we could depict in words the substantial character of this journal as a repository of current American therapeutics.

The list of contributors includes the leading and representative authors of the period; and their contributions are original, practical, progressive, and comprehensive of the whole field of therapeutics.

More we need not say. Every issue of this journal is made up with painstaking care, and it is gratifying to announce that the support of subscribers and contributors is being augmented constantly—as we hope THE AMERICAN THERAPIST deserves.

### WHAT SHALL WE DO FOR THE BABIES?

What shall we do for the babies? is a question of absorbing interest at the present time. When it is stated that in the city of Philadelphia alone, during the week ending July 7, the mortality among children under five years of age averaged fifty per day, we can have but a faint conception of the ravages of disease elsewhere, all through the heated term. In truth, such enormous mortuary returns must be regarded as a National calamity, not to

mention the serious manner in which it reflects upon the medical profession. If we were so unfortunate as a nation to be visited with the cholera scourge, even with no higher mortality rates, the entire civil fabric would shortly be disrupted. In the opinion of the writer this appalling death-rate is maintained, nay, is favored, by reason of the ignorance which exists throughout the community in regard to appropriate dietetic and hygienic regulations, and the object of the present brief paper is to direct special attention to these defects. Everywhere and under all circumstances, the excessive heat is assigned as the cause for the infant mortality; but if this were actually the case, no children could live in this climate beyond the age of five years. The truth is, although reluctantly admitted, that the trouble begins with disorders of the digestive system. The old doctors thought it was the “nerves” that caused the difficulty, while modern scientists claim that sickness is due to bacteria. The older physicians gave opium to quiet the nerves, and the modern scientists now recommend the products of bacteria to cure and relieve the thousand and one ailments which flesh is heir to.

The dangers incident to the administration of oat-meal and barley-water in disorders of the stomach and intestine have been so thoroughly portrayed in these columns that it seems a work of supererogation to again refer to them. It has been said that the best way to secure abrogation or repeal of a bad law is to enforce it. Now, on the same basis, let those who insist upon the plan of giving foods which readily ferment in the stomach and intestines give, instead, a free and liberal supply of the substance to which objection is made. Let the children be fed altogether upon yeast. That would have some practical value, because the yeast-ferment would be sufficient to destroy the other ferments, and having to contend with but one, disease would soon be subdued. Even before we knew that the yeast-cells



contained an actively antiseptic substance, nuclein, we were familiar with the value of yeast in the treatment of diphtheria, leg-ulcers and various forms of dyspepsia; but it is the merest folly to suppose that any permanent good can come from the use of half-ounce doses of barley-water, or teaspoonful doses of oat-meal porridge.

Still, the substances might not do so much harm, provided proper care was given to their preparation and storage after being prepared. These substances readily undergo fermentation unless kept constantly in a cool place. Indeed, the physician ordering them, knowing this peculiarity, not infrequently gains favor with the mothers and nurses by explaining to them the necessity for keeping these foods (?) in a cool place—until such time as they are to be introduced into the child's stomach. Shall we say that this is premeditated on the part of the honest, conscientious and thoughtful physician? In truth, it looks very much like it; but we are charitable enough to charge it to ignorance, or thoughtlessness, or even something milder. Let those who uphold the practice demonstrate that it is more frequently observed in the breach than in its performance, namely, the protection of the infant's food from contamination by offensive vapors, fumes, but more especially from the invasion of the myriads of flies which are so common during the summer season. The diseases from this latter cause have never been properly estimated, never can be controlled, and must always prove a source of danger. The fact that all infant foods contain saccharine substances in some form, which invariably attract flies, should be repeatedly impressed upon the nurse; and in addition to this, she must be closely watched.

Perhaps the most frequent form of intestinal trouble is that which affects the small intestine. True, this in mild form may be relieved by a little paregoric; or the child will seem improved by a small dose of castor-oil. It is in such cases as

these with the treatment outlined that we have dysentery as a sequel, and then the small doses of paregoric or castor-oil are useless. Because the initial treatment was successful in overcoming a slight diarrhea is no indication that the same treatment will succeed in dysentery. But the fact is that the initial treatment was not successful; it merely postponed the evil day, and as the original treatment was faulty, its continuation becomes hazardous. That this is true is well shown by the enormous mortality rates already quoted. The facts are cumulative and cannot be gainsaid; the evidence of a century is overwhelming, and it must be confessed, presents a most humiliating spectacle.

That the writer may not be unjustly accused of iconoclasm, let us draw a more attractive picture. When diarrhea supervenes, it must be regarded as an indication of some poisonous substance in the small intestine acting as an irritant. If starchy foods are withheld, Nature will do much towards promoting a restoration of the functions by pouring an increased amount of blood-serum into the intestine, and in the meantime, foods taken up by the stomach will sustain the strength. In this class of cases the stools are frothy and sour, showing conclusively the presence of fermentation. Again, the stools will present a putrid odor, indicating that putrefactive changes are taking place, in which case albuminoids must be restricted, the patient being liberally supplied with mucilaginous drinks. It is remarkable how efficient are these simple substances, probably because they act in the alimentary canal in the same manner as outside of it, clinging to all foreign substances with which they come into contact. These are the cases in which it is necessary to withhold foods temporarily; but when resumed, they should be of the farinaceous variety.

The most difficult problem in the dietetics of children has been due to our inability to reach the small intestine by suitable medication. We may practice wash-

ing out the stomach; irrigation of the lower bowel is always useful; both are efficient adjuvants. But it seems that medication often fails to reach the seat of the disease—the small intestine. There is a probability, however, that all this trouble is not due to the condition of the intestine alone, as the indications point to derangement of the stomach, the pancreas, and the liver, not to mention the possible vicarious function which is thrown upon it as an eliminant because of constitutional disturbances.

It would be profitable to speak of the necessity for suitable bathing, sleep, fresh air, exercise, amusements, clothing adapted to the day as well as to night, frequency of feeding, the dangers from domestic medication, the use of antiseptics, etc., etc., but space forbids.

### ORGANIC EXTRACTS.

Nearly a year and a half has elapsed since the subjects directly relating to organic extracts were considered editorially in this journal ("True Isopathy," and "Organopathy," Feb., 1893) and the present seems to be an auspicious moment for taking up the thread of our argument, by making some further comments upon this important question. At the time mentioned, it was stated as follows: "We are, therefore, compelled to withhold a definite opinion as to the ultimate results of studies in organopathy, since its therapeutic basis must be determined from purely scientific investigation; clinical observation should be regarded as complementary to this work."

In the current issue, in another department, Dr. Porteous presents some interesting data relative to the therapeutic value of this line of treatment, and it must be evident from his observations, together with the experimental evidence furnished by Professor Vaughan in his investigations concerning the physiological properties of nucleins (*Journal of the American*

*Medical Association*, June 9, 1894), that organic extracts offer an inviting field for further study and investigation. In this connection the writer begs to state that these conclusions have not been arrived at hastily, nor without counting the ultimate cost in the matter of reputation which must attend all advances in any direction; but the evidences, experimental and clinical, are so overwhelmingly in favor of the intrinsic value of this method of treatment that it is utter folly for rational physicians to attempt to set them aside either by argument or ridicule. How long it will require for this information to diffuse itself throughout the entire medical fabric, time alone must determine, but present indications point to the possibility of physicians being able to cope with the most desperate diseases without resort to deadly poisons in the form of drugs. Professor Vaughan reports the case of a little girl with membranous tonsillitis, with high temperature, in which nuclein solution made from yeast-cells constituted the *only* treatment, and he had the satisfaction of seeing the child at his office on the following day practically free from disease.

The great value of thyroid treatment in myxedema has been demonstrated again and again, not only in this country, but in nearly every country in both hemispheres. In addition to this, however, we must also chronicle the efficacy of thyroid medication in quite a number of diseases entirely dissimilar from myxedema. Now, is it not possible, say, quite probable, that the efficiency of dessicated thyroid or the thyroid extract may be due to the presence of nuclein or nucleinic acid? Of course, we do not as yet know absolutely the exact composition of this substance, further than that it is a phosphorized proteid, and may be obtained from quite a number of different sources; but clinical investigation has demonstrated that it is effective in eradicating disease, and more especially comforting, the fact that it is practically harmless and can be used internally or hypodermatically without in

the least endangering the life or health of the patient, statements which cannot truthfully be made in regard to any of our most approved antiseptics and disinfectants.

A report has just reached these shores which is deserving attention in connection with these remarks, namely, the apparent success which promises to attend the use of anti-choleraic virus by vaccination in Calcutta, and although the evidence is still incomplete, there is good reason to assume that a revolution will be effected shortly in the treatment of this most fatal malady. It would not be out of place here to suggest the employment of the nuclein solutions hypodermatically in cholera. In case the proposal should be regarded with suspicion, it would certainly not be out of place to employ them *after* the patient had been given up by his physician. The remarkable effects produced by these solutions in the most serious abdominal disorders, cholera infantum, cholera morbus, obstinate diarrhea and dysentery, commends them to the serious consideration of the medical profession; and as nuclein is presumably the active substance of the organic extracts it is but reasonable to conclude that from it can be secured all the benefits to be derived from that complex product.

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## Correspondence.

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### EXOPHTHALMIC GOITRE.

TO THE EDITOR.—SIR: My daughter, sixteen years of age, has exophthalmic goitre of three months standing. There is no constitutional taint, and she was strong and healthy up to this attack.

I used at first injections of dilute carbolic acid into the gland, once in four days; then gave iron and digitalis; then syrup of iodide of iron; then electricity, galvanism daily to neck; but the disease has steadily progressed. There has been no eye trouble, until last night, when pain set in. Neck not very large; pulse 120 to 150; hair falling out; spirits depressed, occasional

vomiting and some cough and slight change of voice.

Will you kindly offer a suggestion. I am using—just begun—tincture strophanthus and shall increase dose unless I get some sort of effect—good or bad. I am also just giving elix. calisaya, iron, and strychnine ( $\frac{1}{100}$ ), three doses a day.

I thought perhaps you might be able to suggest something, that would prove more efficacious than any thing I know of, and certainly I would appreciate your suggestion.

Yours fraternally

—, M. D.

### REPLY.

Exophthalmic goitre is an exceedingly intractable malady, depending for its causation upon some occult derangement of the nervous system, although it often appears rather suddenly and without apparent cause. Doubtless, in many cases the disease is ushered in by reason of unsuspected defect in nutrition; and as a preliminary to treatment it would be advisable to make a thorough examination of the blood with a view to determine whether or not the malarial parasite is present. Next in order I should deem it necessary to study the condition of the digestive apparatus, more especially the intestinal digestion, which would require a knowledge of the habits of the patient in regard to diet. There can be no question but that habits of living have much to do with the development of these occult disorders, and if it has been the custom of the sufferer to live principally on bread and starchy food-stuffs, to the exclusion of meats, there always lingers a suspicion that a reformation in this direction may possibly solve the mystery. With a suitable dietary together with hepatic stimulants, and aids to intestinal digestion much may be accomplished in the way of improving the intestinal digestion. For this purpose we may combine with small doses of mercury biniodide pancreatin and ox-gall, in capsule or tablet form, to be taken *with* meals; small doses of ipecac can also be added to this combination, thus insuring the prompt and regular action of the bowels and materially lessening the tendency to nausea.

In studying the condition of the blood it would also be advisable to make a calculation as to the presence of hemoglobin, since anemia almost certainly follows de-

fective nutrition. Nevertheless, I do not think that iron in itself will prove of much benefit, owing to the fact that absorption of the remedy is interfered with, and for that reason it seems better to depend upon the diet and the improvement which will necessarily attend stimulation of the hepatic function. Of course, it is understood that the patient must be placed under the most favorable hygienic and social conditions, and that excitement from any cause should be especially avoided, although not to the exclusion of moderate exercise. Massage, however, will sometimes prove an efficient adjuvant to dietetic and medicinal treatment.

After attention to the foregoing preliminaries, and being assured that elimination is progressing favorably, it appears to me that medicinal treatment should be conducted upon two distinct lines, namely, palliative and curative. The palliative treatment will consist in the judicious exhibition of the bromides, for the purpose of obtunding nervous irritability, but not in sufficient quantity to interfere with the normal work of the vegetative functions. Probably the sodium bromide in thirty grain doses three times daily will answer the purpose, but should it be necessary to secure a bromide that will enact the rôle of an eliminant, potassium would be preferable in somewhat reduced dosage. As an adjuvant to this, I will suggest the addition of small doses of belladonna, not sufficient to produce any distinct physiological effects. The addition of belladonna not only heightens the action or effect of the bromides, but it also tends in a most remarkable manner to allay the throat manifestations while at the same time it acts as an efficient cardiac regulator.

The curative treatment will consist in the administration of remedies calculated to improve the condition of the vascular system—take up the slack, as it were—and you will find nothing superior to arsenite of strychnine and ergot, although neither of the remedies need be given in sufficient quantity to produce any perceptible physiological effects. While both digitalis and strophanthus are recognized as valuable cardiants, they do not seem to produce anything like the effect upon the blood-vessels that is secured by either strychnine arsenite, or ergot. The effect of strychnine arsenite upon the general system is something astonishing, and is always indicated when the tissues are re-

laxed or "flabby." This combination, moreover, does not produce the nervous manifestations characteristic of strychnine alone, and any symptoms of this character will be kept fully under control by the joint exhibition of the bromide mixture containing the belladonna.

The following formula is recommended:

R Strychninæ arsenis.....gr. j;  
Ergotini, (aqueous ext.)...gr. xxxij.  
M. et ft. tab. trit. No. 32.

Sig.: Take one tablet every four hours (four tablets daily).

To give you a better idea of my idea of the pancreatin mixture, the following is submitted:

R Hydrarg. iod. rub.....gr.  $\frac{1}{4}$  (.25)  
Pancreatini.....gr. xl;  
Fel. bovis purificat. (U.  
S. P. 1890).....gr. xl;  
Ipecac.....gr. x.  
M. et ft. tab. vel caps., No. 25.

Sig.: One capsule to be taken *with meals* (three times a day).

The addition of galvanism to the neck would also be serviceable, providing it does not cause too much excitement or irritate the patient; and after a few weeks it might be well to discontinue the pancreatin mixture for some preparation of iron, perhaps the same that you have been using, syrup of the iodide.

There is still one other point to be considered in this connection, namely, the leucocytosis. If you should examine the blood at a time when digestive leucocytosis is absent, you will probably find that the number of leucocytes is comparatively small, and as a consequence, leucocytosis must be defective and the antiseptic properties of the blood-serum are not maintained. This is a condition especially marked in the case of malarial toxæmia, or chronic malarial infection, and although I have noticed most favorably results from the use of strychnine arsenite in this disorder, we have in *nuclein* a superior remedy. I take it that as strychnine has the effect of producing a more compact condition of the tissues, that those bodies are sent out upon their proper work, instead of being allowed to remain in the tissues and intercellular fluids. Recent investigations in regard to the effect of massage upon the blood seem to confirm this view, but the exhibition of nuclein without either the massage or the strychnine arsenite will promptly accomplish the same, or even better results. I would, therefore, suggest the employment of nuclein, say a tablet containing one-third minim, every two hours, for the purpose of improving leucocytosis.

## Current Literature.

### THE LEUCOCYTOSES.

The following clear and interesting statements are contributed by WILLIAM OSLER, M. D., to "An American Text-book of the Theory and Practice of Medicine," vol. II, p. 211. (W. B. Saunders, Philadelphia, 1894.): Besides the different forms of leukemia . . . there are many conditions in which the number of leucocytes in the blood is increased. These non-leukemic processes, since the time of Virchow, have been spoken of as *the leucocytoses*. In his "Cellular Pathology" he describes a "physiological" leucocytosis belonging to acute inflammations, such as erysipelas and pneumonia. He explained the phenomenon by supposing that the substances carried to the lymphatic glands stimulated their cells and caused them to proliferate, and as the leucocytes were thought to arise from a proliferation of these cells, it was readily conceived that they should immediately be found in greater numbers in the blood. Since then, numerous observers have studied the blood in the most varied diseases, and found in many, particularly in the acute suppurative diseases, a pronounced leucocytosis.

Much light has been thrown on the subject since the discovery of the existence of chemotactic processes. When one considers the tremendous number of leucocytes which accumulate in a short time in the formation of a large abscess, he cannot help wondering whence they have all arisen. Inasmuch as in all acute suppurative processes there is an extensive increase of leucocytes in the blood, besides the aggregation of leucocytes at the seat of inflammation, it is obvious that the leucocyte-building organs are capable of being suddenly aroused into an enormously increased activity. The study of pus and of the dried and stained specimens of the blood from these cases show

that the extra number of leucocytes is made up almost entirely of polynuclear neutrophiles.

Speaking generally, we are able to guess in any acute disease whether or not there will be a leucocytosis. If the disease be one in which there is a pronounced local reaction—i. e., a disease associated with inflammatory exudation in a certain part of the body—then there will almost certainly be an increase in the number of polynuclear neutrophiles also in the blood. On the other hand, where there is little or no local reaction, no matter how intense the general process, then we shall expect only a slight leucocytosis, or none at all.

The local reaction is to be regarded as the result of a positive chemotaxis. There are, as we now know, certain substances which attract, and certain others which repel, the white blood-corpuscles. Such substances are spoken of respectively as being positively and negatively chemotactic. Of their nature we as yet know but little; it seems probable, however, that they are products closely allied to the alkali-albuminates which result from the necrosis of certain tissue-cells. Buchner and his pupils conclude from their investigations that the protein substances of the bodies of micro-organisms are positively chemotactic, and that the presence of dead bacteria suffices to account for the attraction of the leucocytes (Römer). This does not, however, explain the chemotaxis resulting from the injection of substances like turpentine, nor that which takes place in certain necrotic areas in the liver and lymphatic glands which have been shown to bear no direct relation to micro-organisms.

The subject, however, is too wide to admit a full discussion here. We would emphasize the fact that leucocytosis occurs, as a rule, only in diseases which have a local reaction, and that its extent is proportionate to the latter, so that we are able to say *a priori* in a given infectious disease whether or not a leucocytosis

will exist. Thus, in a croupous pneumonia or a suppurative pleurisy there will be a leucocytosis proportionate to the extent of the lung or pleura involved, while in typhoid fever or malaria, where there is no marked local reaction, there will be little or no leucocytosis. Indeed, in typhoid the number of leucocytes would appear to be diminished. This peculiar character of the blood in typhoid fever furnishes us with a ready method of discovering complications in that disease. I have often . . . seen a leucocytosis appear precisely at the onset of a complicating pleurisy or pneumonia in the course of typhoid fever.

The course of the leucocytosis in pneumonia is extremely interesting. Increasing with the lung-consolidation, it reaches its maximum just before the crisis, and then the decrease in the number of leucocytes is as marked as the fall in temperature. Thus, a leucocytosis of 20,000 to 30,000 may drop within a few hours to 6000 or 8000. There is some reason for believing that the greater the degree of local reaction (of which the leucocytosis may be regarded as an index), in a disease like acute lobar pneumonia, the less is the virulence of the general blood-poisoning. Thus, Tschistovitch claims that in a pneumonia where the leucocytosis is slight or absent the termination is always fatal. The theory has received some support from von Jaksch; and if these results are confirmed, the blood examination in pneumonia will be of great use for the prognosis. In one of my own cases, however, there was a leucocytosis of over 45,000 to the cubic millimetre just before death, the autopsy showing a croupous pneumonia of the right upper lobe, together with a fibrino-purulent pericarditis, with myriads of the lanceolate pneumococci in the exudate. In a recent fatal case there was a leucocytosis of 114,000 to the cubic millimetre. The disappearance of the leucocytosis in erysipelas is, as in pneumonia, also by crisis.

In addition to these inflammatory leu-

cocytoses, a large, sometimes enormous, increase of the leucocytes has been observed in the cachexias of malignant neoplasms. How far this leucocytosis is dependent on the local reaction in the neighborhood of the tumor (necrosis and wandering-in of leucocytes), is not as yet clear.

### THE NATURE OF DIPHTHERITIC INFECTION.

This subject was discussed at a recent meeting, and the following inquiry was Dr. C. H. Stowell's contribution to the discussion (*National Medical Review*): The question is, whether if you were "once in grace, always in grace," or, to apply that saying to the case in hand, Is the bacillus which causes diphtheria always and invariably derived from preceding bacilli capable of producing that disease? Or, to put it in another way, Is it possible for benign bacilli to become malignant? Not very long ago this Society had a very interesting discussion on the question "Can a benign tumor become malignant?" and while there was a difference of opinion on this subject, yet the consensus of opinion was that such might be the case. In fact, before the discussion was closed, Dr. William Goodell, of Philadelphia, was being quoted in the journals to the effect that all cases of lacerated cervix should be operated upon, because of the danger of this benign trouble becoming the seat of malignancy.

Some years ago Dr. Dallinger, of London, began a series of experiments on micro-organisms to prove how they could be affected by a change of their environment. His observations extended over a series of some seven years, and his conclusions were intensely interesting. He showed conclusively that by the slow, gradual change of environment these low forms of life could easily be brought to life in media which would be sudden death to them under ordinary circumstances. Not long ago Dr. Theobald Smith, of the Department of Agriculture, in reply to a

paper read by Dr. Reyburn before the Biological Society of this city, said that bacteria did change their form and structure. Observers had found that certain forms of bacteria might gradually take on certain changes until finally a form would be produced which was quite unlike the original. To come back again more closely to the question before us, we have to remember that there are constantly in the mouth of each person countless numbers of benign micro-organisms. Let us suppose the person is in good health, well fed and surrounded by the best sanitary conditions, then there is no reason why these micro-organisms, naturally existing in the mouth, should change. But here comes the question which we wish to ask the author of the paper: If benign tumors can become malignant, if micro-organisms can be greatly changed by change of their environment, if they can even become changed in form and structure, than we are ready to ask why is it not possible for the simple bacilli, normally found in the mouth, to become so changed as a result of lowered vitality of the system, together with a locally diseased condition of the mucous membrane of the throat, and also associated with unsanitary surroundings of the individual, to take on malignant properties? To be brief and to the point, then, we would ask, is it not possible for the simple bacilli of the mouth, under certain abnormal conditions, to become so changed that they will produce a disease which it would be impossible to differentiate from diphtheria?

#### SUMMER DIARRHEA IN CHILDREN.

Dr. J. F. Griffin contributes a general review of treatment in summer diarrhea to the June issue of the *Medical Summary*, from which we quote the following—sure to interest our readers: Dr. John Aulde, some three or four years ago, introduced the plan of administering cupric arsenite which is furnished in tablets of 1-1000 and 1-100 grain. He adds a tablet of 1-100 grain of cupric arsenite to four ounces of

water, and of this gives a teaspoonful to an infant under two years, every fifteen minutes during the attack of the diarrhea for one or two hours, and lessening the time between doses to half hour, hour, and two hours according to the frequency and continuance of the actions. But as this plan has been fully elaborated in the *Summary* it is only necessary to state that a very great many have declared in favor of it, while a few, very few in fact, have declared against it. I have just discharged a little patient cured by this method. Critics would say: "Oh well, the child would have gotten well anyhow, through the *vis medicatrix naturæ*." These critics, however, do not trust to the *vis medicatrix*, and I noticed in this case that the mother would give the medicine in frequent doses, at once checking the diarrhea, and she would then abstain from giving it, the diarrhea would commence again, she would renew the remedy in frequent doses, check the diarrhea again, then abstain from giving again. This occurred several times, but as soon as she kept up the medicine there was no return of the complaint. Of course it should be well understood that arsenite of copper is not an infallible remedy for every case of diarrhea. You do not name the disease and then give the remedy for that name. There are certain pathological conditions for which the cupric arsenite is adapted. There is, as Dr. Aulde asserts, a histological condition, manifested by various symptoms, a cellular inactivity, over which the arsenite exerts an influence which elsewhere I have termed *dynamism*.

#### DRUGS TO CURE NIGHT-SWEATS IN PHTHISIS.

In the July number of the *Brooklyn Medical Journal* is published a really practical report on the treatment of the night-sweats of pulmonary tuberculosis, by Dr. Henry Conkling, Assistant Visiting Physician at St. Peter's Hospital, Brooklyn, the principal value of which is a competent comparison, based on a series of clinical ex-

periments over a period of five years, of various drugs lauded and employed as remedies. We quote the facts and arguments presented by the author, and offer the suggestion that his conclusions deserve consideration and acceptance:

Of all the multitudinous symptoms which pulmonary tuberculosis presents, with all the vagaries that these manifest in the clinical histories of individual cases, there has been no condition which I have found easier to combat with success than the night-sweats. I make this statement without qualification, and without hesitancy, especially at this time, when my cases have grown to a large number.

In the first part of the series the fact was repeatedly noted that in severe cases with marked sweating the symptom, under treatment, soon diminished, and in a comparatively short time entirely disappeared, so that early in the tests the line of observation became two-fold. The object was not only to use the most successful drugs, but also to ascertain which of these produced the diminution and the cure of the sweating with *the least injurious or unpleasant after-effects*. \* \* \*

I have been careful, therefore, not to include in this report any cases where general improvement soon came, and where the sweating might have disappeared without special treatment.

The object has been to test individual drugs. *No combinations have been used*. Many remedies have been employed; eight only are reported, these having had the largest number of administrations.

*Aromatic Sulphuric Acid*.—This is at times a useful remedy. It possesses some marked disadvantages. It could not be used for any length of time; it frequently produces constipation. \* \* \*

*Camphoric Acid*.—Camphoric acid was found to be very uncertain in its action. Its successes and failures did not seem to bear any relation to particular cases. It sometimes would succeed where before it had failed. It had no after effects. The dose given was gr. xxx in water at bed-

time. This remedy had a large number of failures. It diminished the sweating in a very few; and was successful in a little over one-third of the administrations. But, even in some of these the perfect cutaneous dryness of some other remedies was not noted.

*Chloralamid*.—This was found to be a very important and valuable remedy. Mention of its use as an anhidrotic has appeared in print several times. My own knowledge of its power in this direction was obtained by accident soon after its introduction into the American market. The drug was being used in tubercular patients as a hypnotic. The patients, after giving their answer as to the effect of the "sleeping medicine," would frequently say that the sweating was less or absent. This was repeated so many times that finally the drug was tested. It was found to produce sleep, stop cough and stop sweating. It had no disadvantages, either producing the desired result or being inert.

Chloralamid was given in one dose of gr. xxx or gr. xxxv., at bedtime, either in powder or in the form of Schering's elixir.

The remedy diminished the sweating in less than one-fourth of the administrations, failed in about the same number, and succeeded in over one-half. Even in severe cases the first administration was frequently successful.

*Muscarine*.—This was the least successful of all the remedies. \* \* \*

*Oxide of Zinc*.—The experience with this drug showed that there was no particular idiosyncrasy required on the patient's part to produce the good results. It was also interesting to note that the element of time was not needed. It was not necessary to use it in repeated doses to produce the effect desired. In many cases the first administration would stop the sweating. But if the first few doses were not successful, the latter ones seldom were. Another feature in this drug was that, when other remedies had failed, the first dose of the oxide of zinc would be frequently successful. It had no after-effects.



It was given in pill form at bedtime in doses of  $2\frac{1}{2}$  grains. This remedy stopped the sweating in two-thirds of the administrations, the others somewhat reduced it, or failed entirely.

*Agaricin.*—This was the most successful of all the drugs. It produced most excellent results in young subjects. Under its use the skin remained in a dry condition, without suspicion of any kind of cutaneous activity. It was very successful in cases where, during its use, the sweating had disappeared, and had returned after the drug had been discontinued for a time. Repetition did not weaken its power. Of all the remedies it acted best in the first few administrations. Subsequent ones sometimes failed. It can be used for any length of time and has no disadvantages.

Agaricin was given in pill form, gr.  $\frac{1}{100}$ ; one pill at bedtime, or a pill late in the afternoon, and a second in four or five hours. This remedy diminished the sweating in one-eighth of the administrations, stopped it in three fourths, and failed in the remainder.

*Atropine, and Tinct. Belladonna.*—The study of these cases has shown that atropine and belladonna are not the best anhidrotics. \* \* \* Even the good effects of checked perspiration were sometimes counterbalanced by disadvantages.

Atropine was given in tablet or in solution in doses of gr.  $\frac{1}{100}$ , or less; it diminished or stopped the sweating in over two-thirds of the administrations.

The dose used of tinct. belladonna was m. vii or m. x, commencing in the afternoon and giving two or three doses; it stopped the sweating in 70% of the administrations, diminished it in 20% and failed in 10%.

The above brief report deals with some of the points recorded during the treatment of the cases. The smallest possible dose was always used. At present with other remedies the same line of investigation is adopted. But with the above, if the first few administrations do not stop the sweating, another drug in the list is at once tried.

**CARBOLIC ACID HYPODERMATICALLY FOR ERYSIPELAS.**—Gaston (*Med. & Surgic. Reporter*) has for twenty years employed this drug in the various forms of erysipelas with invariably good effect in promptly arresting the progress of the disease. He employs the following formula:—

Carbolic acid .....	f 3 i
Glycerin .....	f 3 iii
Distilled water .....	f 3 iv

Mix and inject hypodermatically one syringeful in each portion of the size of a hand, daily.

With this, local irritation has resulted from the injections in only a few cases. Where the thickened and hardened condition of the skin has rendered it difficult to introduce the needle, he has selected points on the border of the inflammation to make the injection, so as to reach the areolar tissue beneath.

On one occasion a toxic influence was manifested, but he has repeatedly used a syringeful of the solution in four different places without producing any untoward effect. It is proper to repeat the injections daily for three days, but he has never had occasion to continue the treatment longer. In some cases he had depended upon it alone, but in others has employed purgatives and tincture of chloride of iron.—*Phila. Polyclinic.* — — —

**COMPOUND TINCTURE OF COAL TAR.**—Duh-ring (*Am. Journ. of the Med. Sciences*) from a trial of many formulas concludes that the best tincture of coal tar is made with the aid of tincture of quillaia. That the strength of the tincture of quillaia should be 1 to 4, with 95 per cent. alcohol. That the coal-tar (1 part) should be digested with the tinct. of quillaia (6 parts), with frequent agitation, for not less than eight days, and preferably for a longer period, and finally filtered. The resultant product is a brown-black clear tincture, which upon the addition of water forms a cleanly yellowish emulsion, the color and certain other characters varying with the kind of coal-tar employed. The tincture is stim-

ulating, and is prescribed usually largely diluted, with from 10 to 60 parts of water as a wash; and is useful where tar is indicated, as in certain forms of eczema, psoriasis, pruritus, and in other inflammatory diseases of the skin. It is often more useful when employed weak than strong. This preparation, which may be designated as "compound tincture of coal-tar," takes the place of several similarly composed proprietary preparations as "liquor carbonis-detergens" and "coal tar saponine."—*Phila. Polyclinic.*

**TRIKRESOL FOR INHALATION.**—Dr. Robert Lee makes this new and interesting suggestion in a letter to the editors of the *Lancet* (No. 23, June, 9th, 1894): The interesting observations of Prof. Charteris on trikresol, communicated through the *Lancet*, must have attracted the attention of many of its readers; and the important fact that trikresol is free from the poisonous qualities of carbolic acid must have suggested its great superiority in medical and surgical practice. Through the kindness of Prof. Charteris I have been favored with a specimen of Schering's trikresol, in order to ascertain whether it could be used for inhalation, as the poisonous properties of carbolic acid have for that purpose made it somewhat objectionable. My object was to determine whether trikresol, when mixed with water in definite proportion would, like carbolic acid, when treated similarly, yield a vapor, on boiling, of definite and constant strength, a peculiarity which attaches, as I pointed out some years ago, to carbolic acid, and which makes it superior to all other antiseptics for inhalation. I find that trikresol follows the same law, as might have been expected, as carbolic acid, and that a mixture of one drachm of trikresol to one pint of water gives off, when boiled continuously, a vapor of the same strength as the mixture. This is rather strong for children, and a weaker solution may be used. To what important uses this property of trikresol can be applied in the treatment of many maladies by inhalation, I hardly need point out.

## Book Notices.

**AN AMERICAN TEXT-BOOK OF THE DISEASES OF CHILDREN:** Including special chapters on essential surgical subjects, diseases of the eye, ear, nose and throat, diseases of the skin, and on the diet, hygiene and general management of children. By American teachers. Edited by LOUIS STARR, M. D., assisted by THOMPSON S. WESTCOTT, M. D. Cloth, 8 vo., pp. 1190. Illustrated. Philadelphia: W. B. SAUNDERS, 1894. Sold by subscription only. (Price, \$7.00).

In the short space at our command it would be impossible to do justice to all of the valuable contributions in this magnificent volume, and to publish a mere catalogue of the chapters is not well calculated to convey any considerable amount of intelligence to the general reader. It will be advisable, therefore, to select certain portions that are specially worthy of attention by reason of the recent views which obtain, or point out the particularly commendable features of some of the numerous sections. The number of contributors is so great, the subjects treated so numerous and varied, and the general character of the articles are of such uniform excellence that such a course will not in the least tend to discredit or reflect unfavorably upon those not mentioned.

In the volume before us there are three separate contributions that seem to demand special attention, because of the thoroughness and completeness of the discussions devoted to the subjects, because of the fact that they embody recent information relating to the etiology, pathology and symptoms characteristic of the different diseases, and, further, because of the belief that the investigations which have been in progress for some time will eventually effect material and substantial reforms in methods of treatment. We have reference here to the article on tuberculosis by Dr. Osler, that on malarial fever by Dr. Thayer, and the contribution of Dr. Vaughan on diarrheal diseases.

Never before in the history of medicine have we so thoroughly understood the life history of tuberculosis, if this expression be permissible, than at the present time, and yet, notwithstanding the multifarious remedies that have been advocated, there is in fact no known remedy or combination of remedies that will positively arrest the disease. That many cases of tuberculosis can be arrested and cured cannot be gainsaid, but he would be reckless indeed who would agree to arrest or cure a given case of tubercle. The insidiousness of its invasion, the liability of its being mistaken for some other affection, owing to the part affected, the peculiar manifestations of the disease under varying conditions, and the extremely unsatisfactory results attending the most approved plans of treatment, all conspire to make tuberculosis one of the most exasperating disorders coming under the care of the physician. But with the light reflected by the masterly presentation of the subject by Dr. Osler, it is but reasonable to suppose that the ravages of the disease may be greatly ameliorated, owing to the additional knowledge recorded concerning its inception and development, and we therefore specially commend the subject to the attention of the general practitioner.

Dr. Thayer shows most conclusively that the treatment of malarial fever need no longer be conducted upon the expectant plan, because its existence can be demonstrated almost instantly by placing a drop of blood under the microscope. While the malarial parasite can best be studied under a high power, its actual presence can easily be recognized with a moderately low-power glass. Still, the fact remains that cases of unsuspected malaria often exist without regular rise in the temperature and without the usual septenary symptoms, where the parasite in its perfect form is not positively demonstrable, or its presence is proven only after repeated examinations, and it is to be regretted that Dr. Thayer has not more

thoroughly studied this question. True, he teaches that these cases of malarial cachexia may be arrested by the administration of quinine, but he admits that the condition is not positively eradicated, but on the contrary, these subjects are even more liable to attacks than those who have not previously suffered from the disease. About eight years ago, the writer had under observation one of these perplexing cases—where the disease manifested itself regularly every spring and autumn—and within the past two years he has had a comparatively large number of patients of this class. Quinine in these cases almost certainly *arrests* the malaria, but *does not eradicate* it; the addition of other remedies, directed to the nutrition and to the hepatic function and digestion will prove serviceable, but it does seem that the vitality of the parasite still remains. The employment of nuclein, however, has been attended with uniform success.

In previous numbers of the *AMERICAN THERAPIST*, Vaughan's recommendations for the treatment of diarrheal disease have been referred to incidentally, and it remains for us to note that his observations covering the etiology and pathology of the diseases of the alimentary tract are all that could be desired, and when the information herein contained is diffused throughout the profession, the infant mortality will be lessened at least one-half—*without medication*. The method of treatment, that is, medicinal treatment, the writer believes, is open to criticism, simply because it does not comport with our methods of treatment in similar conditions, surgical cases for example, when we have to contend with effects that are much the same. Surely, if we have millions of micro-organisms in the alimentary canal, it seems unreasonable to expect benefit from the use of opium in any form whatsoever, and although it may be the "classical" method, it is not consistent with our knowledge to-day; and as its use cannot be defended it ought to be abandoned.

Dr. Earle, of Chicago, contributes a very satisfactory article upon typhoid fever, except that his medicinal armamentarium is rather too elaborate, and it is not too much to say that some of the recipes given would prove rather unpalatable to a sick child. He very properly condemns the free use of quinine and says nothing about an initial *calomel purge*, but from his familiarity with the value of antipyretics for the reduction of fever, it is evident that he is not aware of the valuable properties of copper arsenite in this disease and kindred affections. When this remedy forms the basis of treatment, with mercury biniodide in small doses for hepatic complications, there is *no need for antipyretics*, since the temperature scarcely ever rises high enough to be in the least alarming. The value of this simple and effective remedy is such that it should be recognized in a work which assumes to present American plans.

Dr. Hardaway, of St. Louis, contributes an instructive and concise article upon diseases of the skin, which is mentioned merely to call attention to the fact that he condemns the use of oat-meal as an article of diet for these sufferers. Unfortunately he has not been favorably impressed with calcium sulphide in the treatment of boils, nor does he subscribe to the employment of yeast, although at the time of writing he was probably not aware that the value of yeast in this disease as well as in diphtheria, indigestion, leg-ulcers, etc., depended upon the nuclein.

The foregoing sketchy commentary will probably serve to attract the attention of those who are directly interested in the special subjects mentioned, and at the same time it will answer as a synopsis of the recent advances that have been made, the criticisms in regard to treatment being intended as suggestive rather than harsh or arbitrary.

The publisher has done his part of the work in a most admirable manner; the paper is excellent, the print clear and large enough to be read with ease

and comfort; the binding is substantial and the illustrations are very well done. But one thing remains, and that is, to succeed in getting it into the hands of physicians who pretend to treat diseases of children, in order that they may read it and profit by the instruction it contains.

THE NURSE'S DICTIONARY OF MEDICAL TERMS AND NURSING TREATMENT; Compiled for the use of Nurses, and containing descriptions of the principal medical and nursing terms and abbreviations, instruments, drugs, diseases, accidents, treatments, physiological names, operations, foods, appliances, etc., encountered in the ward or sick room. By HONNOR MORTEN, author of "Sketches of Hospital Life," "How to Become a Nurse," etc. Philadelphia: W. B. SAUNDERS, 925 Walnut Street. (Price, \$1.00.)

The contents of this little book are quite as varied and complete as might be expected from the lengthy title page just given. The definitions are briefly and well rendered, the printing clear, the paper good, and the work altogether such as highly to recommend itself to the nurse or student, to whom it will prove a useful pocket accompaniment.

It would have added materially to the value of the work if the pronunciation or accentuation had been given; which may perhaps be done in the future editions, which are sure to be called for. P.

THE HEALTH RESORTS OF EUROPE; A Medical Guide to the Mineral Springs, Climatic, Mountain and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand and Air Cures of Europe. By THOMAS LINN, M.D., Doctor of Medicine Faculty of Paris, Doctor of Medicine and Surgery, University of New York; Member of the British Medical Association; Member of the Continental Anglo-American Medical Society; Physician to the Bathing Establishments of Aix-les-Bains, etc. Second Edition. JOHN WRIGHT & Co., Bristol, England.

This is a handsome book, with large clear print, bound in red cloth with a printed cover. It is accompanied by a map showing the railway routes and

Health resorts of Europe, including Great Britain. The information it supplies embodies not only interesting and useful information as to climate, latitude, longitude, altitude and population, but also much that is valuable in reference to the various medicinal waters and their different qualities; the diseases for which each is especially adapted; the names and addresses of numerous physicians, and their specialties; the principal hotels, railway distances and fares; money values, etc., comprising in all a volume of 332 pages, with a suitable index.

This is just such a book as the traveller or invalid going to Europe requires, and being written by a medical man having facilities for a thorough acquaintance with the subject, is to be preferred to the ordinary Guide Book, and will be fully appreciated by those for whom it is specially intended. P.

#### *PUBLICATIONS RECEIVED.*

Polio-Encephalitis Acuta. By SAMUEL WOLFE, A.M., M.D., of Philadelphia. Reprint, 1894.

Functional Constipation. By W. BLAIR STEWART, A.M., M.D., of Bryn Mawr, Pa. Reprint, 1894.

California for Health, Pleasure and Profit. Published by the Passenger Department of the Southern Pacific Railway Co., San Francisco. An illustrated brochure of 104 pages, handsomely gotten up and conveniently arranged for reference.

The Treatment and Cure of Chancre with Peroxide of Hydrogen. By WILLARD PARKER WORCESTER, A.M., M.D., of New York. Reprint, 1894.

The Bicycle in Its Relation to the Physician. By SENECA EGBERT, A.M., M.D., of Philadelphia. Reprint, 1894.

The Action of Heat in the Treatment of Ringworm. By J. ABBOTT CANTRELL, M.D., and E. J. STOUT, M.D., of Philadelphia. Reprint, 1894.

Report of a Case of Angina Pectoris. By HERMAN D. MARCUS, M.D., of Philadelphia. Reprint, 1894.

Creosote Carbonate and Guaiacol Carbonate. Published by SCHERING & GLATZ, of New York. 1894.

Improved Portable Apparatus for the Generation of Nascent Ozone by Electricity. For use in the treatment of tubercular catarrh, pertussis, chlorosis, etc. Published by J. C. DITTRICH, of New York.

Phthisis: A New Method of Treatment. By HENRY S. NORRIS, M.D., of New York. Reprint, 1894.

A Case of Herpes Zoster Showing Erythematous, Papular and Vesicular Stages. By J. ABBOTT CANTRELL, A.M., M.D., of Philadelphia. Reprint, 1894.

Bismuth Sub-gallate (Dermatol), in Dermatology. By J. A. CANTRELL, M.D., of Philadelphia. Reprint, 1894.

A Contribution to the Study of the Physiological Actions of Sparteine. By DAVID CERNA, M.D., Ph.D., of Galveston, Texas. Reprint, 1894.

Ophthalmia Neonatorum: Contraction of Eyelids, Glaucoma, Grattage for Granular Lids. By L. WEBSTER FOX, M.D., of Philadelphia. Reprint, 1894.

Extra-Uterine Pregnancy Simulated by a small Tumor of the Ovary: Operation, recovery. By WM. H. MORRISON, M.D., of Philadelphia. Reprint, 1894.

Influenza followed by Pleuritis and Endocarditis. By AUGUSTUS A. ESHNER, M.D., of Philadelphia. Reprint, 1894.

Congenital Absence of the Gall-bladder. By AUGUSTUS A. ESHNER, M.D., of Philadelphia. Reprint, 1894.

The Literature of Sea-sickness. By J. A. IRWIN, M.D., of New York. Reprint, 1893.

A Case of Contusion and Rupture of the Ilium. By FREDERICK H. WIGGIN, M.D., of New York. Reprint, 1894.

The Uric Acid Diathesis and Its Treatment. By JOHN F. BARBOUR, M.D., of Louisville, Ky. Reprint, 1894.

A Successful Treatment of Anemia, with effect shown by increase of red corpuscles and hemoglobin. By H. P. LOOMIS, M.D., of New York. Reprint, 1893.

Acute Appendicitis. By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1894.

#### *ANNOUNCEMENTS.*

University of the City of New York. Medical Department. Circular of Information, 1894-95. For copies, address CHARLES INSLEE PARDEE, M.D., Dean, New York.

Annual Announcement and Catalogue of the Baltimore Medical College. Session of 1894-95. For copies, address, DAVID STREETT, M.D., Dean, Baltimore, Maryland.

Report of the Jefferson Medical College and Hospital, for the year ending September 30, 1893. For copies, address, JAMES W. HOLLAND, M.D., Dean, Philadelphia.

Report of the Rush Hospital for Consumption and Allied Diseases, for the year ending February 1, 1894. For copies, address NATHANIEL E. JANNEY, Treasurer, Philadelphia.

The Jefferson Medical College. Seventieth Annual Announcement. Session of 1894-95. For copies, address, JAMES W. HOLLAND, M.D., Dean, Philadelphia.

The Fourth Annual Meeting of the American Electro-Therapeutic Association will be held in New York, Sept. 25, 26 and 27, 1894, at the Academy of Medicine. Members of the profession cordially invited.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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No. 2.

## Original Articles.

### ARSENITE OF COPPER AS AN ANTISPASMODIC.

By W. BLAIR STEWART, A. M., M. D.

Lecturer in Therapeutics; Lately Instructor on Practice of  
Medicine in the Medico-Chirurgical College of  
Philadelphia, Pa.

After all that has been written upon this subject by Dr. Boardman Reed, Dr. John Aulsebrook, and many others, it would be entirely out of place to enter into any long dissertation upon its preparation, general physiological action and therapy. It is my desire to relate several clinical experiences with this valuable drug, inasmuch as the results were so well defined. It is my custom to use a tablet triturate containing one one-hundredth of a grain, and when referred to in this article that strength is understood. Unless the tablet-mass is triturated many hours and done by reliable parties your results are uncertain, for, as arsenite of copper is merely held in suspension in the water with which it is mixed, the more intimate the trituration the greater will be the power of suspension.

During the past spring and early summer my attention was demanded by a number of very obstinate and severe cases of whooping-cough which developed in very young children. May mainstay has been bromoform in full doses, given with alcohol, glycerin and tincture cardamom comp.; but in spite of this remedy complications arose which demanded other medication, and it occurred to me to try the efficacy of arsenite of copper as an antispasmodic, and, happily, the results were surprising.

Case I. Ann Lewis G—, aged three

weeks, contracted whooping-cough from children in the house. It developed very rapidly, and in one week she had a hard paroxysm almost every hour and sometimes two or more each hour. Bromoform was given in one-half drop doses and increased to one drop with good effect for several days, when bowel trouble developed and threatened cholera-infantum. The paroxysms became so hard and violent that each one seemed to be its last, and the whole body became cyanotic at the time. One tablet of arsenite of copper was dissolved in fifteen teaspoonfuls of boiled water, and to it was added five drops of tr. nux vomica. One teaspoonful was given every half-hour for six consecutive hours, and then every hour afterward. Diarrhea and colic were checked in twelve hours, and the number of paroxysms diminished. This remedy was continued alone for one week, at intervals of two hours, with the result that the paroxysms diminished in number and severity, and in four weeks from the onset the child was entirely cured.

Other cases followed, and the arsenite of copper was used in two of them in which the paroxysms were well defined. The tablet was mixed as before in 15 teaspoonfuls of water, the nux vomica omitted; and a dose given every hour until the effects were manifested, and then every two hours. The results were equally satisfactory; the paroxysms diminished both in number and severity, and the process was checked in about four weeks. Parallel cases, treated with bromoform, averaged about twenty-one to twenty-four days in duration.

While it is impossible to draw definite deductions from such a small number of cases and go on record as to its exact re-

sults in every case, yet it suggests to me the propriety of putting this remedy to a thorough test as an antispasmodic in pertussis. It has led me to mix treatment, and alternate every one or two hours between bromoform and the arsenite of copper, with more satisfactory results than from either drug alone. It possesses the advantage of being a very acceptable drug to children, and can be given with perfect impunity.

During the summer of 1890, Dr. Boardman Reed and I experimented with the arsenite of copper in the treatment of after-pains in confinement, and published our results in the *Times and Register* of that year. I have followed up this line of investigation in sixteen typical cases, with the following results: Nine cases received absolute relief; six were greatly benefited, and one received no relief. One tablet was dissolved in ten or fifteen spoonfuls of water and one spoonful given every ten, twenty, thirty or sixty minutes as indicated.

Having seen the great antispasmodic action of the preparation in so many cases, its use was suggested in two cases of threatened miscarriage, and with success. Mrs. M. M., aged thirty-five, mother of four children, in her seventh month, did a heavy day's washing which was followed by regular labor pains of the first stage. The pains came regularly about every three to five minutes; os uteri was slightly dilated and relaxed; vagina and vulva thoroughly lubricated with glairy mucous, and head could be felt presenting high up. She was placed in bed at once; given a hypodermatic injection of morphine, one quarter grain, and atropine, one one-hundred-and-fiftieth. One tablet of arsenite of copper was prepared as usual and one spoonful given every ten minutes for three hours. The pains began to diminish in severity and interval, and in twenty-four hours had completely disappeared, leaving the woman weak and prostrated, but the child was saved. One day later the bowels, which had not been moved for ten days

according to her story, became active and developed into a regular attack of cholera morbus, which was soon controlled by the constant use of the arsenite and two hypodermic injections of morphine to relieve the severe pain. This occurred ten days ago, and to-day the woman is moving around the house and says the movement of the child is very active.

In dysmenorrhea, delayed menstruation, scanty menstruation or ovarian irritation and pain, it is my custom to prepare and give the following in teaspoonful doses every half hour or hour, with very satisfactory results.

R. Cupri arsenitis (trit.)... gr.  $\frac{1}{1000}$ .  
Tr. pulsatillæ..... gtt. viij.  
Tr. nucis vomicæ..... gtt. iv.  
Aquæ ..... f.  $\frac{3}{4}$  ij.—M.

Each dose of arsenite of copper is so small (gr.  $\frac{1}{1000}$ ) that it is impossible to claim that its good effects result from its antiseptic action. Arsenite of copper in large doses is an irritant, antiseptic and toxic agent. A small dose is also irritant, but that action is small and necessarily limited, and the irritation is only sufficient to stimulate the weakened cells of the gastro-intestinal canal to greater functional and physiological action and place them in a more favorable position for resisting the inroads of disease or aborting it when acquired. It is a typical example of cellular-therapy, for the effect is obtained indirectly through cell action and impression.

Arsenite of copper has given me good results in treating diarrheas in children, providing the bowels have been thoroughly emptied by calomel, magnesia or aromatic syrup of rhubarb. Failing in this, small doses of calomel and ipecac (gr.  $\frac{1}{1000}$ ), thoroughly triturated and administered every two hours, will almost invariably give satisfactory results. Nursing children respond rapidly to its action and are relieved of colic, nausea and diarrhea. If good results do not follow the arsenite of copper, do not be too ready to condemn it but rather satisfy yourself that you have obtained a proper preparation and have carefully applied it to such cases as would in all probability be benefited by its use. Let it be understood that its action is entirely unreliable in organic pains and pains of acute inflammations.

Atlantic City, N. J.

## THORACOPLASTY—REMOVAL OF RIBS.

By HAL C. WYMAN, M. S., M. D.,

Professor of Surgery in the Michigan College of Medicine  
and Surgery, Detroit, Mich.

The operation known as thoracoplasty is one of the most useful surgical inventions. It is capable of saving the lives of thousands who now perish in consequence of pleural abscesses treated by other methods. It is a bloody operation and leaves the chest frightfully disfigured, but behind the deformity is a circulation and respiration sound and vigorous. No operation in surgery more quickly accomplishes more satisfactory conditions. I have seen a man without appetite, with pain, great emaciation and delirium, whose right lung was collapsed, whose pulse was very feeble, whose right pleural cavity contained pus which issued imperfectly from sinuses made by free incisions between the ribs, recover his appetite, secure relief from pain, regain the promise of sound health within twenty-four hours after excision of six inches of the anterior extremity of the three ribs over the most dependent part of the abscess and the removal of all dead and decomposing material.

It is to be regretted that the range of usefulness of thoracoplasty is not better understood. I shall be satisfied if this contribution teaches those who have regarded this operation as one of the grave procedures in surgery to recognize it as a perfectly tractable measure, to which they can resort in every case of pleural abscess in which the simple incision and drainage do not promptly bring about a cure.

There are two things which thoracoplasty can do for a sick man. They are as follows: First, provide means of drainage by which every particle of pus and poison can be gotten rid of; Second, provide a wound substance which will yield and blend in the process of healing. When pleural abscesses are treated without removal of the ribs, the walls of the abscess are so widely separated in consequence of

the unyielding character of the ribs over it that approximation and healing seldom take place, even if the cavity be washed out sundry times daily with antiseptics. The lung cannot expand sufficiently to secure obliteration of the abscess-cavity, and consequently the case becomes chronic and the patient is exhausted by the protracted suppuration and infection.

The number and extent of ribs to be removed will be determined by the size of the abscess-cavity and directions of its channels. Enough bone must be removed to secure collapse of the abscess after it is emptied of pus and remains of necrosed coagula. The opening in the chest-wall must be so located that drainage is spontaneous, and it must be large enough to permit easy access to all channels and recesses of the abscess. There must be no dead spaces in which fluids can accumulate and distil the poisons which wear out the patient with fever.

The operation is not difficult, but it must be thorough. The skin over the diseased chest should be sterilized so far as practicable, and the abscess-cavity should be cleansed as thoroughly as the mucus will permit. An incision should then be made through the integument over one of the ribs and periosteum; commencing near the axillary border of the scapula, it should be carried forward to the costal cartilage. The bone should then be stripped of its periosteum with the handle of the scalpel. With a little care, the artery of the rib can generally be removed from its groove so that it will not be severed when the bone is excised with the forceps. The next rib to be removed is treated in the same manner; but early in the operation, after the first rib is removed, the abscess cavity is thoroughly explored with a view to determine how much bone must be taken away. In this exploratory investigation great care is necessary. The sound lung tissue and the connective tissue adjacent to it must not be disturbed. Adhesions must not be broken up if you expect your patient to live. A simple and spontaneous drainage



must be established and an approximation of the abscess walls secured. The dressing should consist of enough plain gauze, freshly sterilized by heat, to absorb the fluids that will pour out in the course of twenty-four hours, together with sufficient sterilized cotton to protect the wound from the air. This should be held in place by a many-tailed bandage applied around the chest. The patient is then placed in bed in that position which is most comfortable. The bowels will require the same care that has been found so useful after operations on the abdomen. The patient will need iron, bitter tonics and plenty of eggs, milk and gruel to start him on the road to convalescence and recovery. The frequency of changing the dressing will depend upon the amount of the discharge; generally, a fresh supply of gauze will be required once a day for the first week, as after that the quantity of pus steadily diminishes. As the granulation-tissue increases in vigor, the quantity of gauze needed to take up the fluid grows less.

46 Adams Ave., W., Detroit.

### *APPENDICITIS, WITH REPORT OF A CASE.*

By W. O. ROBERTS, M. D

On the 26th of May I was called to Parkland, Ky., to see a case in consultation which furnished the following history. The patient was a man about forty years of age; he had not been in very good health for six months or more, though he had not been confined to the house; had been attending to his business as a laborer of some kind in a distillery. This consultation was on Saturday. On Thursday of the week previous he came home tired and laid down upon the bed before an open window. He dropped off to sleep, awakening in an hour or so with severe pain in the right side of the abdomen. The pain was intense, as he described it, but he had no medical attention until the following morning. The doctor found him still suffering severe pain and with a temperature

of 102° F. The patient was given one-third of a grain of morphine hypodermatically, and in forty minutes an additional one-eighth grain was given which had the desired result of relieving pain. The doctor then gave him a dose of Rochelle salts, which he says acted the following morning. After that he claims that the patient had no further elevation of temperature; that he had occasionally pain which was relieved with opium, and he had every day or so a dose of Rochelle salts for the emptying of his bowels.

At the time of my visit the patient's temperature was 99 and a fraction, pulse 78 and good volume; he had the expression of a man who was in some pain; the tongue was not coated; there was no sweating except such as would ordinarily occur on a hot day, no sweating to indicate suppuration anywhere; he had several stools a day, small and thin, and as he described them, yellowish in color. There was a very distinct enlargement in the right inguinal region extending up almost on a line with the umbilicus, and extending to left within two inches of the median line. This swelling was tympanitic on percussion. I diagnosticated the case as one of appendicitis and had the patient taken to the Norton Infirmary. He lived at the extreme end of Parkland, and reached the Infirmary about seven o'clock at night. Shortly after his arrival there his temperature was taken and found to be 101 and a fraction; his pulse was 80. He had a dose of Rochelle salts that morning, and the next morning (Monday) his temperature was 100 F., pulse still 80. The enlargement in the right side had increased somewhat in size, and there was rather more distension over the balance of the abdomen; still the outlines of the tumor could be distinctly made out. Dr. Vance happened in the infirmary about that time and I had him examine the case with me. The only evidence that this man gave of suppuration was the peculiar sweetish odor to his breath. Examination per rectum showed that there was considerable bulg-

ing of something into the pelvis. He had some trouble in emptying the bladder; he could not empty it completely. I had the catheter used after he had passed water, and drew off at one time six or eight ounces. In the evening I gave him two doses of castor oil, and the next morning the bowels moved freely. He had no elevation of temperature, and still had a good pulse.

Operative measures were determined upon, and carried out by making the usual incision. As soon as I had cut through the abdominal wall, the foulest matter I think that I have ever smelled, excepting that which comes from an ischio-rectal abscess, poured out. I then introduced my finger into the cavity and removed from it an enterolith. I irrigated the cavity thoroughly and did not spend much time searching for the appendix; packed the cavity with iodoform gauze, and the man has made a smooth and easy recovery. The third day after the operation quite a considerable amount of fecal matter escaped from the cavity through the wound; this continued for three days, then stopped, and there has been no further escape of fecal matter through the opening. The man has now left the infirmary.

Louisville, Ky.

### *SALOL IN IMPETIGO CONTAGIOSA.*

BY J. ABBOTT CANTRELL, M. D.,

Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Dermatologist to the Philadelphia and St. Agnes Hospitals.

The present paper follows a number of reports from the skin clinic of the Philadelphia Polyclinic upon the use of salol in certain forms of diseases of the skin, and while the results have in most instances given the desired benefit, it has, like other remedies, failed to prove itself beneficial in some affections of the skin. Saalfeld stated before the Dermatological Society of Berlin, at the meeting held May 1st, that he had received good results following its use in impetigo contagiosa. This

writer recommended the use of salol in ointment form of a strength of 5 per cent.

Salol is a combination of salicylic acid and phenol, and was first produced by Prof. Nencki, of Basel. Nencki found that the action of heat upon the above named chemicals in the presence of phosphorus pentachloride or phosphorus oxychloride produced a whitish, somewhat crystalline, powder. It was without odor, and had a very slight aromatic taste.

The present paper is confined to the use of salol in impetigo contagiosa, whether the disease has been caused simply by contraction from another affected person or is coincident with a pediculosis of the scalp. I have thus tried the drug in over 100 cases of this disease and the results obtained justify its further continuance as a remedy for it; I shall include in this report only a small number of those showing the more prominent symptoms.

The strength of the preparation used in these investigations was usually an ointment of four per cent., with petrolatum as a base, but in one or two instances the drug seeming inert, I advised a stronger preparation, and this will be referred to while recording the cases.

Of the cases that were not complicated with a pediculosis, I have included 10, and in each the result is indicated:

Case I. Boy, æt. 10, had had a vesicular eruption, the lesions being six in number, occupying the chin, around the mouth and the forehead, and being of one week's duration. The lesions were crusted, and had the crust peculiar to impetigo, being adherent alone in the center of the lesion. The case was cured after a treatment of five days.

Case II. Girl, æt. 14, stated that she had a vesicular eruption for ten days. I found five lesions scattered around the nose, all having the peculiar crust as noticed in No. I. The case was entirely relieved in one week.

Case III. Boy, æt. 7, brother of case No. II, had a similar eruption around the

angles of the mouth and covering the right ear. It was of five day's duration. Cured in five days.

Case IV. Young man, æt. 20, had a number of lesions scattered through the bearded region of the face. The patches resembled very much those found in a *tinea circinata* or a beginning *tinea sycosis*. The cure was apparent in about ten days.

Case V. Girl, æt. 3, had a vesicular and crusted eruption over the face, arms and legs which resembled to a very great degree a scabies, being with difficulty at first diagnosed from it. The condition had existed three weeks. A 4 per cent. salol ointment was tried for three days without apparent change, when an 8 per cent. ointment was given, and the case was cured in ten days from time of beginning.

Case VI. Girl, æt. 6, had contracted the disease from case No. V. and it had existed about five days. The lesions were scattered, mostly on the neck. The 4 per cent. ointment was sufficient to produce a cure in four days.

Cases VII and VIII. Sisters, æt. 5 and 6, showed a similar eruption upon the forehead, around the nose and near the angle of the mouth. These cases had the disease four days in each instance. Cured in four days.

Case IX. Boy, æt. 14, had the eruption for two days. He stated that he had been in swimming at one of the city baths. He showed a vesicular condition on both buttocks and over the legs. This case was also diagnosed without difficulty. Cured by the 4 per cent. ointment in one week.

Case X. Male, æt. 50, complained of a vesicular eruption which had existed for five days. The lesions were superficial and crusted. The man had a short beard and on superficial examination the case resembled a ringworm of the beard, but upon closer examination the characteristics of *impetigo contagiosa* were seen. A 4 per cent. ointment cured it in one week.

#### IMPETIGO CONTAGIOSA WITH PEDICULOSIS.

These cases, numbering 50 in all, were

affected with pediculosis of the scalp, and in every instance they were given a bath in solution of sodium carbonate, and this followed by the application of the salol, the same strength of ointment being used as in the other variety, except in some few instances, which are recorded.

Case I. Girl, æt. 12, had head well supplied with hair and on examination a quantity of ova were found but the parasite could not be detected; in addition to the above she complained of an eruption in the occipital region. The bath was ordered and the ointment to follow. The child was entirely well in one week.

Case II. Boy, æt. 7; ova and parasites discovered, also vesicular and crusted eruption on the occiput and through the scalp. Bath and salol cured it in one week.

Case III. Girl, æt. 19; head literally swarming with the parasites; lots of ova, vesicular and crusted condition scattered all through the head. Bath and salol as above cured the parts in one week.

Case IV. Female, æt. 30, one of the tramp class; not only pediculi of the head but also of the body. The bath and ordinary treatment of the clothing followed by the salol ointment, both upon the head and body, resulted in a cure in one week, but the patient was under immediate treatment all the time.

Case V. Boy, æt. 3, Jewish, had had the present condition for six months, according to the statement of his mother. I really believe that there was not room for one more parasite; ova in abundance. Head well covered with a vesicular and crusted eruption. The hair was matted down in one mass. The bath was advised to be used night and morning, and to be followed with the 8 per cent. salol ointment. It took ten days for a cure.

This, of course, contains the individual report of only a few cases, but the results in the others were equally as good.

1010 So. 3d St., Philadelphia.

*AUTUMNAL CATARRH.*

By JOHN AULDE, M.D.

The term "hay-fever," or "hay-asthma," is generally applied to that form of catarrh which occurs in this section of the country during the months of August, September and October, the peculiarities of which vary considerably according to the location, the susceptibility of the patient and the character of the treatment employed. While not wishing to introduce a new disease, or a new name for an old disease, it may be of interest to consider some of the features which apply to that peculiar form of bronchial irritation to which I have given the above name. Like hay-fever, it appears to be due to atmospheric influences, or rather to the presence of irritants in the atmosphere, but this exciting cause soon disappearing, the effects are observed in the form of a more or less persistent bronchial catarrh. It may assume in different patients all the varieties of chronic bronchitis, but the ordinary methods of treatment which are advocated fail to afford more than temporary relief. In fact, the remedies usually employed are only palliative, and it seems as though in many cases the patients would fare better without treatment. The experience of general practitioners, I think, will bear me out in this statement, although those who are equipped for special treatment will scarcely allow such a sweeping claim to pass without a curt denial; but it must be remembered that they reach these patients through the general practitioner, who cannot make any perceptible impression upon the disease, and as they require the patient to report from day to day, it is but reasonable to assume that local treatment will show better results than the ancient methods by internal medication.

It will not be necessary in this connection to discuss the influence of the micro-organisms, as it will be admitted on all sides that these mephitic bodies must play an important part in perpetuating the dis-

ease, once it is started. Whether it be a simple bronchorrhea, a fetid bronchitis, a dry catarrh, a bronchiectasis, a fibrinous or a plastic bronchitis, we have the soil, the heat, the moisture, the tissue change, everything, in short, suitable for the rapid multiplication of microbes of nearly every description. Local treatment by vapors, inhalations of different aromatic substances or antiseptics, will prove effective for the day, but in comparatively few cases will the relief be permanent, owing to the tendency of the abnormal secretion to reappear. The old method of exhibiting ipecac and other nauseants is now very properly regarded as obsolete, since intelligent men have seen that this mode of treatment is worse than useless. True, the laity do continue to place a limited amount of faith in expectorants which enable them to "bring up the phlegm," but the physician sees that it is only a hocus pocus plan to keep the patient constantly swallowing nauseating drugs. Nothing so thoroughly convinces the skeptical of this as the change that takes place when the patient removes to an elevated region where the air is dry and bracing. Where they have the means to travel, many of these patients who have lived for weeks in the greatest distress, will fully recover in the short space of twenty-four hours, all of which goes to show that the ordinary method of treatment is a consummate failure. Moreover, many of them become disgusted, give up treatment and recover as soon as the cold weather approaches, remaining entirely free from catarrhal irritation until the following autumn.

Let us make a brief inquiry as to the conditions present in the initial stage of this peculiar form of catarrh. Some persons are readily affected at all seasons of the year by certain odors, such as that emanating from roses, certain flowers, or the pollen from plants of various kinds. It is safe to say that we have no remedy or combination of remedies that will promptly arrest attacks of this kind after they have been thoroughly established, and the sys-

tem is fully under the influence of the irritant. But this stage does not last very long, a few days at most, unless the cause is continued. It is the effect upon the system, local and general, which we wish to counteract. Patients suffering in this manner apply to the physician for relief from a "cold," complaining that they do not know how they happen to be thus attacked. There is cough, limited or profuse expectoration, with lack of appetite, and there is a marked susceptibility to draughts, even when the weather is warm and balmy. Few physicians will fail to recognize this picture; but what proportion of them will claim that they can distinguish this form of a "cold" from that which occurs in the months of January, February and March? Is it not true that autumnal catarrh is treated in just the same manner as a catarrh which occurs during the months mentioned?

It would be interesting to know just what Nature does for these cases on the approach of cold weather, or when they remove to an elevated region with a clear, bracing atmosphere; but as we cannot fathom this mystery at the present time, it behooves us to inquire as to the best methods of relieving those who cannot take the advantage of a trip to the mountains. There are two indications: First, we must improve the muscular tone of the pulmonary structures; second, we must stimulate leucocytosis, thus improving the antiseptic character of the blood-serum, which lessens the out-put of secretion. We must not overlook the fact that the profuse secretion which occurs in all forms of bronchitis is but an attempt on the part of Nature to correct a defect. The blood-serum is itself an efficient antiseptic, and as it constitutes the principal portion of the mucus, we can but infer that its effect is, or should be, curative. The view that this secretion is something simply to be gotten rid of, some waste-product which Nature is trying to throw off, is, in the opinion of the writer, erroneous, and has doubtless led to much unnecessary drug-

ging. Yet it has formed the basis of treatment for generations, and notwithstanding the search-light which has been brought to bear upon pathology by bacteriological studies, it still seems to retain its hold in the modern text-books.

It would be interesting here to consider the appropriate uses of alkalies and acids when employed in bronchial affections, but as that would lead us away from our present purpose, this discussion will be omitted. It will be sufficient to sum up the means within our reach for accomplishing the two objects in view, namely, the improvement of the muscular tone of the pulmonary structures, and the correction of the defective leucocytosis.

For the purpose of taking up the slack, that is, improving the muscular tone of the pulmonary structures, we have a most important remedy in strychnine; but strychnine alone produces in most subjects a peculiar effect upon the nervous system which is objectionable, hence it cannot be given for any considerable length of time. Combined with arsenic, in the form of strychnine arsenite, it seems to possess remarkable properties, not only in correcting defects in the pulmonary circulation, but it also affects the entire vascular system. A patient to-day may be languishing from a debility which he is unable to overcome; expectoration may be free, but there is an entire lack of ambition. Given small doses of strychnine arsenite, say  $\frac{1}{100}$  grain every two hours, and this languid feeling will disappear in the course of a few hours. To-morrow, the patient will be out and around at his work as usual; but notwithstanding the improvement in the physical condition and the general feeling of well-being, the profuse expectoration continues unabated. It is in these cases that acids are given for the purpose of arresting the profuse secretion of the bronchial tubes; but the treatment by acids accomplishes but little, owing to its untoward effect upon the skin and the kidneys. Other astringents may be used, ergot, belladonna, gallic

acid; but because they tend to interfere with the normal functions of elimination elsewhere, the results of treatment are most disappointing.

To be effective in relieving this morbid condition, we must make an attempt to stimulate the natural antiseptic functions, and as the rôle played by nucleins in the human economy has been so fully elaborated in these pages, it will not be necessary to recapitulate the advantages resulting from their administration. Suffice it to say, that by the exhibition of nuclein in the form of solution we supply the system with an artificial product identical with the natural product; a product which is antiseptic, which is stimulant, which increases the functional activity of the polynuclear white corpuscles, thus enabling the blood to regain its normal condition. When, from any cause, the function of the leucocytes is disabled or suspended, their activity is lessened, as may be demonstrated by placing a drop of the patient's blood under the microscope. When an artificial stimulus is supplied, their distribution is more nearly universal throughout the system, and the patient quickly experiences the stimulating effects of the changed conditions. Nowhere will the marked effects of this special form of medication be more noticeable than in the treatment of the affection which I have designated "autumnal catarrh," as the following illustrative cases will readily demonstrate.

Case I.—Mr. L., æt. 46, shoemaker, married, and of a delicate physical make-up, suffers from asthmatic attacks every season, the attacks beginning late in August. These attacks are not always of the same severity, but are usually ushered in during the night time, when he is awakened by pronounced shortness of breath. The attacks have continued for a period of twelve to fifteen years, and the patient has been under various forms of treatment. Several years ago he took oxygen inhalations after the first attack and escaped further trouble during the

remainder of that season. Another year he visited northern New York and felt all right as soon as he stepped off the train, but the catarrh re-appeared on his return to Philadelphia, doubtless owing to the hygroscopic condition of this atmosphere.

In the autumn of 1892 this patient was given up by the physician then in attendance, in the belief that he was in the last stages of consumption, and as a last resort, I was called to see him. Taking in the situation at a glance, I prescribed for him strychnine arsenite,  $\frac{1}{100}$  grain every two or three hours. This occurred in the morning, and he was so well on the following day that he ventured upon a trip to the central portion of the city, about six miles distant. The medicine was continued from time to time until cold weather set in, when the catarrhal condition of the bronchial tubes disappeared, and the profuse expectoration subsided. Last autumn this patient consulted me again for the same series of ailments. The asthmatic paroxysms had not been severe and had subsided, but there was present a most aggravated bronchial catarrh which had left him in an extremely prostrated condition. Indeed, the mucus accumulated to such an extent that he failed to secure his proper rest, being compelled to sit up from time to time in order to expectorate; it was at times muco-purulent, indicating that the bronchial tubes were more or less dilated. An examination of the chest discovered a veritable music box, and the man was absolutely helpless, being unable to walk about the house, and work was out of the question. Strychnine arsenite was given as before, and in the course of a couple of days the patient felt greatly improved, but the profuse secretion of mucus continued. Small doses of nuclein solution were then added to the treatment, and in less than a week, probably four or five days, the catarrhal condition had been thoroughly conquered. Recovery was prompt and permanent, the disease showing no disposition to return, although it should be stated that the nuclein solution

was continued alone for about ten days longer.

Case II.—Mrs. H., æt. 22, is subject to asthmatic attacks from various causes, such as odors, pollen from plants, dust, indigestion, etc., and is usually very promptly relieved by the judicious use of strychnine arsenite, but this is followed by a profuse bronchial secretion that is annoying. Lately I have taken the precaution to administer with the arsenite small doses of nuclein solution, say  $\frac{1}{2}$  minim every two hours, and the effect has been most happy, the bronchial secretion being reduced to a minimum. The last attack was quite a severe one, and recovery was so prompt that the patient became alarmed and sent a messenger to inquire if everything was all right, as she had not been "spitting up" as usual.

Cases of this character might be multiplied indefinitely, but they would be simply a repetition of what has already been recorded. The object more particularly in presenting the foregoing cases is to point out a principle which applies to the artificial substitution of an important chemical or chemico-physiological property which is sometimes wanting in the economy. The argument would be more conclusive where the principle extended to cover catarrhal conditions affecting other mucous structures, such as gastric or intestinal catarrh or cystitis, but the above illustrative cases must suffice for the present. The theory which applies here has been pretty thoroughly studied, and the conclusions seem to be warranted that nuclein, a phosphorized proteid secreted by the polynuclear white blood corpuscles, is an antiseptic, and that wherever a functional or organic change takes place, Nature sends this antiseptic substance in the form of an increased blood supply to overcome the defective condition. It is undoubtedly this substance which gives promise of such remarkable results in securing immunity from infectious disease. In the case of tetanus, for example, as pointed out in

our last number, so small a quantity of blood-serum as one cubic centimeter obtained from a horse rendered increasingly immune to the toxine, was estimated to be sufficient for the protection of five hundred thousand mice from this disease. In the opinion of the writer, it is not the aggregate amount of the nuclein solution employed, but rather the effect of the exhibition of the remedy in stimulating the activity of the leucocytes, thus producing an artificial leucocytosis, just as the small quantity of yeast-cake employed by the thrifty housewife is sufficient to start up a fermentation as a preliminary to putting the bread in the oven. The fact that nucleins and nuclein therapy are receiving such thorough investigation in nearly all medical centres will be sufficient excuse for the appearance of the present article; but at the same time, it must prove suggestive reading to those who are not familiar with the source, physiological actions and clinical properties of this substance.

1411 Walnut Street, Philadelphia.

### *THE TREATMENT AND CURE OF HUMAN TUBERCULOSIS.*

By THOMAS LINN, M.D.

The question is one of such vast importance that I do not attempt any apology for translating some new ideas upon it taken from a work by Dr. J. Gaube, of Gers, France.

Dr. Gaube states that he has considered all the tissues of the human organism as albuminates, formed of proteid matter and mineral substances, and claims to have shown that each cell-colony has a mineral *substratum* that serves as its support, and favors its vital action. He gives the name "proper dominant mineral" to the substance chosen by each of the cellular elements, and "general dominant" to the mineral matter found nearly everywhere in the human organism, and which constitutes the larger part of the body of man and animals. This is chalk or lime salts.

The ground or "soil" of the human body is, what Dr. Gaube calls the reunion of all these principles, on which the seed of anything may be sown. The animal "soil" is variable according to the quantity and quality of its mineralization, and according to the species, while the state of health is an important factor.

An analysis of fresh pulmonary parenchyma, which has been cleaned of all foreign matters, will give the following result:

Chlorine.....	Néant
Acid phosphoric .....	0.54 per 1000
Lime .....	0.5288 —
Magnesia .....	0.061 —
Soda .....	Néant
Potash .....	Néant

The "dominant" mineral then is lime, and the pulmonary parenchyma is an albumino-phosphatic soil.

It will be noticed that Dr. Gaube speaks of "human" tuberculosis and its cure; this is because experiments made upon rabbits and some animals have not given the results that the treatment proposed has in man, and it is supposed that man is best treated by the new method. Up to now the therapists have sought to destroy the tubercule bacillus, but the present study is upon the soil of the tubercular patient, and the treatment proposed is an improvement of this ground-work.

What, indeed, is the use of killing the microbe as long as the soil in which its seed prospers is allowed to remain a good culture ground? Those patients who are predestined to tuberculosis lose their lime salts and magnesia by disassimilation; they are hypo-chloridic, and in dosing their urine the chlorides will be found to have fallen as low as two grm. per thousand of urine.

The albuminoid chlorides are the most abundant in the organism, and, indeed, we live in an internal salt bath; phosphorus and chlorine exist in regular and constant proportion in the normal urine.

Tuberculosis is the most de-mineralizing malady that exists. The human organism needs a certain *minimum* of minerali-

zation to live, and when the chlorides are wanting the phosphates take their place. This mortal rotation between the principal salts of the body constitutes the "tubercular soil"; hypo-chloride commences the trouble, and phosphaturia finishes this mineral failure. The proteid matter is tributary to the mineral material, and it is known that certain salts, such as lime and sodium chloride, oppose the developement of microbes.

Pathological anatomy has proved that when spontaneous cure of tubercular lungs takes place that calcareous infiltration is found in the pulmonary tissues. These concrete infiltrations are called by Landousy "bacillary bones." Prof. Nocard, the distinguished veterinary surgeon, finds the same thing in animals cured of tuberculosis, and this is easy to understand if the composition of the lung substance is considered as given above.

From these facts, to conclude upon a treatment of injection of such matters into the tubercular patient seems rational. If the soil of the tubercular patient can be restored to its normal amount of lime, magnesia and phosphates, by adding to it the soluble salts that are dialytic, such as chlorides and albuminoid chlorides, with a combination of organic phosphorus, this should stop the ravages of the disease and render the soil refractory to the microbes afterwards.

The injection used is a combination of albuminoid minerals with phosphates, composed as follows:

Pure chloride of calcium .....	88 grm. 62
Pure chloride of magnesium.....	29 grm. 54
Pure chloride of sodium.....	6 grm. 84
Phosphoric acid.....	0 grm. 09165
Casein.....	0 grm. 35
Distilled water.....	1000 grm.

Each syringeful, or cubic centimeter of this, contains:

Calcium chloride .....	0 grm. 0864675
Magnesium chloride .....	0 grm. 02832125
Sodium chloride .....	0 grm. 0066739
Phosphoric acid.....	0 grm. 00009165
Modified casein .....	0 grm. 00034195



That is to say,

- o grm. 02203 of lime,
- o grm. 00572 of magnesia,
- o grm. 003574 of soda.

This albuminoid solution should be filtered and sterilized.

These injections are made on the posterior portion of the thorax, and the syringe should be sterilized. Two c.c. is the dose used, every other day. The skin where the injection is to be made is first washed with an antiseptic solution—lysol is used—; the injection is followed by a slight massage of the part to disperse the liquid. There is no fixed rule for the number or frequency of the doses; the physician will decide this by a careful analysis of the urine.

These hypodermatic injections are slightly painful during the operation, and the point remains very slightly so for some time afterwards. No injection should be made near the same point for several days after having made one. Great care must be taken in those who have sugar and albumin, etc., in their urine, as well as in the alcoholics and very emaciated patients.

As soon as signs of physiological saturation show themselves, the injections must be stopped. This is seen by a vague sense of illness, nervous excitation, lassitude, a metallic taste in the mouth, thirst, and a slight rise in temperature. After a few days' rest the injections may be recommenced.

It will be noticed from the very first injections made that the sputum is completely modified. It is at once much diminished, less dense, and the intervals are wide apart. The cough is moderated, and repose is obtained; appetite comes back; the perspiration diminishes, and diuresis increases, while the patient has an increase of strength that is wonderful. The stethoscopic signs all alter quickly; the humid râles give place to dry sounds. There is a sort of dryness produced in the chest, with, from time to time, a congestion that is followed by resolution.

A large number of cases have been cured in two to three months by this treat-

ment, and whatever may come of this new therapy, the ideas of the author, that phthisis shows a profound demineralization, and that it can be altered by an artificial mineralization, seems proved. Whether this will always arrest the malady we cannot say, but the idea seems a good one in this disease, which has been such a reproach to modern science, so that we hasten to report it for American readers.

Nice, France.

### *GUAIACOL CARBONATE IN SOME INTESTINAL DISTURBANCES.\**

By F. C. SIMPSON, M. D., Louisville, Ky.

If modern medicine has made remarkable headway during the last few years in the discovery of the causes of infectious diseases, modern chemistry has been not less active, and we might add not less successful, in discovering the material necessary to combat them.

The phenol group undoubtedly occupies the first rank as effective germ destroyers and germ poison neutralizers. Outside the body their action is marked and well-known, and in the gastro-intestinal canal it is in every respect the same.

The phenols destroy disease germs, and neutralize their poisonous products in the stomach and intestines. During absorption they form more antiseptic compounds. Seifert has shown that during absorption the phenols, which are not present in the blood in the free state, combine with albuminous substances; and especially with the most reactive of these, the toxalbumins, the products of microbic life. Should fermentative action be going on in the stomach or intestines, medium doses of carbonate of guaiacol will suppress the fermentation; for this particular purpose guaiacol carbonate is especially adapted since it induces an appetite. We know that decomposition of salol occurs in the

\*Read before the Louisville Medico-Chirurgical Society, June 15th, 1894, and stenographically reported for THE AMERICAN THERAPIST.

small intestine; but that of guaiacol carbonate spreads over the *whole* of the small intestine, and is no longer traceable at the commencement of the larger intestine. The experiments made by Hoelscher led me to use it in quite a number of cases of neurasthenic troubles of the small intestine. Of course we find a number of these cases that have the neurasthenic element in them, and intestinal neurasthenia is a complex of the various nervous disturbances.

Leube has called attention to the fact that the symptoms connected with digestion are nearly always preceded by manifestations of a general nervousness. Of course there are cases where we are unable to discover any cause for this peculiar disturbance. I have found very few patients in whom the nervousness was not characteristic—we find that this is either hereditary, or the nervous system has been very severely taxed. Severe mental exertion or sexual excesses have a very decided influence in producing this neurasthenic intestinal trouble.

I have under my care at this time a young man, twenty-three years of age, who suffers most intensely with his intestinal tract, a condition which I believe to be produced by sexual excesses. I have another case in a woman who has well-marked symptoms of intestinal neurosis, and who has been under the charge of quite a number of physicians, who has been entirely relieved of her sufferings by two months' treatment with guaiacol carbonate. It is in these nervous intestinal troubles that I have found the drug of such benefit. I believe we will find it very useful in numerous cases of bowel trouble, such as diarrhea, etc. The results can only be explained by experience.

The leading text books would make us believe that the treatment for these neurasthenic intestinal troubles must be through the nervous system. While I admit that a number of these cases may be thus treated and cured, I must deny that they can *all* be cured by treating the nervous system,

I cite the mentioned two cases as having had most thorough treatment based upon the nervous element which was so prominent. I do not believe that the nervous system is entirely at fault, as the treatment has shown, because there is nothing in guaiacol carbonate that acts upon the nervous system. Many of these cases have a fermentative action going on in the small intestine that adds much to their discomfort, and these are the cases in which guaiacol carbonate is indicated and acts so favorably. I have several such patients under treatment with guaiacol carbonate now (I am not directing any treatment to the nervous system), and I have yet to see the first failure to make a marked improvement after a week or ten days' use.

As I have said elsewhere in this paper, I believe guaiacol carbonate is worthy of an extended trial in other intestinal troubles, and I shall use it extensively during the summer. Of course it will not be of benefit for the troubles of the larger bowel. I believe my observations in this connection make the drug worthy of a trial, and I hope the Fellows will so report at some future time.

#### DISCUSSION.

DR. J. A. LARRABEE:—The field opened by the essayist is essentially a very important one. As far as the agent named is concerned, my experience is somewhat limited, although I have given a great deal of guaiacol carbonate without aiming at the same object; my experience with this agent has been limited to its administration in bronchial and phthisical cases, and I may add that I have failed to observe any improvement in such cases that I could attribute directly to the action of this remedy. There is no question but that guaiacol is one of the agents that have come to stay, i.e.: for intestinal antiseptics. But at the present time I believe we have all concluded that salol is the ideal intestinal disinfectant. However, I see now in my readings that it is claimed that guaiacol is doing better work in such diseases—for instance, typhoid fever—than salol. Personally I have had no experience in this. I shall adopt guaiacol for summer treatment for babies, along

with other remedies. I have been so well pleased, and have had such marked success with salol and naphthalin in the treatment of so-called summer complaint, that I have about settled down to these remedies, believing that they are good enough, and rarely prescribe anything else. I saw four such cases last night; one was a very bad case, a typical case of summer diarrhea, with malodorous and putrid stools. I prescribed six powders composed of one grain naphthalin, two grains salol, a little sugar of milk, and  $\frac{1}{8}$  grain of calomel to the powder. This morning the child was brought to my house on the street car, a ride of perhaps two miles, at my request, because I thought the trip would be of great benefit; it had a stool while I was waiting upon it (it had only two during the night against eight in the afternoon previous); this stool was perfectly inodorous, and of better character and color. I have found no other remedy that will so quickly deodorize the stools and produce such marked improvement; it is possible that guaiacol carbonate may do it. \* \* \*

Dr. Simpson has certainly sprung an important question, but I wish he had extended his observations a little further, as in my reading I find that the external application of guaiacol has been thought a great deal of for its penetrating effect, getting at the germs in this way.

DR. F. C. WILSON:—My experience with the use of guaiacol carbonate has been limited, principally owing to the excessive cost, as is also the case with many other new remedies, such as piperazin. I cannot understand why a remedy of this sort should cost the amount it does. Patients, as a rule, object to paying two or three dollars for filling a prescription that will not last more than three or four days.\* I have used guaiacol in cases of tuberculosis involving the lymphatic system, but the trials were not long enough to tell very much about the effect it would have. I used simple guaiacol—not the carbonate—and on increasing the dose I found that it disagreed with the stomach when the size of the dose had gotten up to eight or ten drops. The carbonate has the advantage, it is said, that the dose may be increased without any disagreeable effects being observed. I have applied guaiacol freely over the glands locally without any beneficial effect as far as I could see. The trouble commenced in the chain of lymphatics in the neighborhood of the thoracic duct at first.

The patient has had more or less fever now for twelve or fourteen weeks. At first the cervical lymphatic glands were not involved; there was simply a soreness along the centre of the chest that could be detected by deep pressure over the front and spinal column; then gradually the cervical lymphatic glands became involved, enlarged and infiltrated. I was satisfied from the first that it was a case of tuberculosis, as the tuberculous history in the family was strongly marked. I not only applied guaiacol locally, but gave it internally also; but I could not see that it influenced the temperature at all. I used creosote and benzanilid very freely without influencing the temperature more than would any other agent of that class that might have been made use of.

I merely wish to commend the carbonate of guaiacol based upon the limited experience I have had with it; it certainly has the reputation of accomplishing a great deal, and I would use it much more except for its excessive cost.

DR. T. C. EVANS (visiting):—I have not had any experience with the use of guaiacol internally. About a month ago one of the members of this society reported a case of pharyngeal trouble, and referred to several others, especially those of a rheumatic nature, which had been relieved by the local application of guaiacol. I had a bottle of guaiacol in my office, and the results seemed so favorable that I thought I would try it on the next available case. Last week a patient came to my office suffering from pharyngitis, and I applied a few drops of guaiacol for its relief; the patient did not complain of much pain at the time; after a few hours I was sent for, but being out of my office did not get the message. The patient returned the following day, and an examination revealed a large cicatrix where application had been made to the mucous membrane—it looked identically like the burn of carbolic acid. I have tried it in several other cases, the patients complaining of very

Guaiacol carbonate can be advantageously dispensed by any pharmacist so that a two dollar prescription may last ten days; and a prescription for two days' treatment should cost about forty cents. Piperazin, on the other hand, is the basis of treatment of a chronic condition—uric acid diathesis—and consequently its use must extend regularly over many months; but ten days' dosage (15 grains per day, the maximum) can be dispensed for two dollars.—EDITOR.

little pain, and I believe some benefit followed its use.

I congratulate myself that none of the guaiacol dropped into the larynx in the case I have referred to, as that certainly might have been a very serious accident.

DR. C. SKINNER:—I have tried guaiacol, and am glad attention has been called to it, because I recognize that its use may be indicated in such cases as the essayist has referred to, and especially in those of a tuberculous nature. I have always employed a combination of carbolic acid and nux vomica in form of capsule for fermentative diarrhea; this works very nicely—of course, controlling the action, of the bowels if necessary with opium. Salol I have used as an intestinal disinfectant in typhoid fever, and what we ordinarily term summer complaint in children, with excellent results. As Dr. Larrabee has stated, salol acts so well and so promptly in these cases that I have felt (and he has expressed my sentiments exactly) that I did not require anything better. I give it with a great deal of confidence, and have never been disappointed. Of course it is possible that guaiacol carbonate possesses qualities superior to salol, and it may be more efficacious in these cases; if such proves to be the fact, I shall adopt it the same as the essayist has done. \* \* \*

If guaiacol carbonate can exert any influence over these cases, it is certainly worthy of a trial. I believe that its cost will eventually come down, as has been the case with most other drugs. I wish to add my commendation, and shall try the remedy in the future.

DR. WM. BAILEY:—There is another remedy I want to place alongside of guaiacol carbonate, corresponding to it, and of service for the very same reason; that is creosote carbonate. I prescribe creosote carbonate for the very reason we would use guaiacol carbonate, that in combination with carbonic acid the stomach is so much more tolerant of it. We have found in treating tuberculosis with creosote that there is great difficulty in getting the patient to tolerate enough of it to accomplish the purpose—although I have one patient with phthisis taking twenty-five drops three times a day of beechwood creosote quite comfortably. I doubt if guaiacol could be given in doses of twenty-five drops. In some cases where there is an inability to take creosote above eight or ten drops, I have given creosote carbonate; but it is difficult to get

patients to continue the use of this remedy as the price is about equal to guaiacol carbonate—\$2.50 to \$3.00 per ounce.\* While creosote carbonate contains over 90 per cent. of creosote it is tolerated in teaspoonful doses as well as creosote is tolerated in doses from ten to twenty drops, and it is certainly a great advantage to get the benefit of so much creosote, or so much guaiacol, with so little disturbance of the stomach. The urine sometimes becomes dark, but I have not seen anything extreme enough to necessitate leaving off the remedy.

I think we can very well understand how the involvement of the intestinal tract makes so great an impression upon the nervous system, when we remember the very extensive distribution of the nervous system in this neighborhood, where we have spread over a very large surface the nerve distribution, and that disease here makes more impression than elsewhere through the splanchnic.

Like Dr. Larrabee, I have found naphthalin and salol so satisfactory that I have not in the treatment of infantile diarrhea found it necessary to adopt this remedy that is so expensive. These are comparatively cheap, but at the same time we find in these two remedies such great value, that I for one shall be very reluctant to give them up. I have no doubt eventually the price of guaiacol will be materially reduced. Beechwood creosote can now be produced for thirty-five cents† an ounce, but used to be much higher; combined with carbonic acid gas, which is so cheap, it ought not to make a very expensive preparation.

DR. F. C. SIMPSON (in closing the discussion):—This subject was brought to my attention by the use of guaiacol in tuberculous conditions. I noticed that it produced a very beneficial effect upon the diarrhea. I had under observation a patient who was tuberculous, and there was also considerable fermentative diarrhea, and the evacuations were excessively acid. Under the use of guaiacol carbonate in ten grain doses for two weeks there was a marked improvement in the condition of the bowels. Just at that time I happened to have a case in

\* The wholesale price of creosote carbonate is less than one-half that of guaiacol carbonate, or about one-fourth the amount here stated.—EDITOR.

† Ten cents per ounce; not over 25 cents during the last ten years, if ever.—EDITOR.

which there was fermentative action which I believed to be of a neurotic character, and as such a happy effect had been produced by the guaiacol carbonate in the case having the tuberculous condition, I was led to use the remedy in the neurasthenic condition, and the results obtained were equally as good. As I have said, the trouble was largely neurotic in character; there was nervous depression and some tendency to diarrhea which would come on about a half hour after the ingestion of food. In the case of the young man mentioned in my paper, the symptoms were especially severe, and it became necessary on some occasions to administer hypodermatics of morphine to quiet him. I began the use of guaiacol carbonate, and in the course of a short time, under eight grain doses every four hours in capsule, there was a very marked improvement and he is now entirely relieved. One of the advantages I have found from this remedy is that it is non-irritant. I have never seen any irritation whatever from as much as sixty grains a day. In the case of the woman that I called attention to, she was also one of those neurotic patients having many nervous manifestations. She would, fifteen minutes after taking a meal, suffer with severe symptoms of indigestion, and considerable pain over the region of the stomach; she even thought on several occasions that she was going to die before the doctor could reach her. She continued in this way for quite a while. I then commenced the use of guaiacol carbonate, and in a few weeks she was entirely relieved. I have used it in six or seven cases of fermentative condition of the small intestine with excellent results, but my experience has not led me to employ it in troubles referred to in the large bowel. One advantage guaiacol carbonate has over salol is, that it is, capable of spreading over so much of the surface of the small intestine; again, it seems to be absorbed much more rapidly, and to be more readily diffused over the intestine; and it acts, I think, much more rapidly than does salol. As stated in my paper, I believe this remedy is entitled to a trial in all fermentative intestinal troubles occurring in the small bowel.

To return to the question of using this drug in tuberculosis: I have given as much as sixty grains a day, and have not seen any marked benefit. I have one patient who has taken three ounces of it, has been using it since March, and he

came back to me to-day with a hemorrhage. I have never seen any marked improvement from its use in these cases except where the intestinal canal was involved, and there I have had some very decidedly beneficial effects. I believe this will open quite an extensive field for the future. I have used salol, naphthalin, and many other preparations of reputed value in fermentative intestinal troubles, without very much benefit. I remember one man in particular who has been treated by several good physicians by means of salol, etc., without any appreciable improvement. He has been under treatment with guaiacol carbonate for a few weeks, and is now better than he has been in three years.

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# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### THE DISPOSAL OF SEWAGE.

With the rapid increase of population, especially in the larger cities of this country, the proper disposal of sewage becomes more and more a puzzling question for the authorities, since it has been repeatedly demonstrated that under restrictions the aggregate of sickness might be materially lessened. Attempts have been made to utilize the organic matter for fertilizing purposes; incineration is now practised, and with apparent success; but with either method there still remains the danger arising from the water, which may contain bacterial products that do much harm, if the truth were known. That cholera and typhoid fever are carried by water, is now too well known to require comment; that diphtheria and probably other diseases may be propagated by means of milk, the initial poison being derived from the water-supply, will not be questioned; hence, the importance of securing some method of sewage disposal which will eliminate all dangers at which we have hinted.

This all-absorbing difficulty has apparently been solved through the keen intelligence and practical skill of Mr. Sidney Lowcock, a civil engineer of Birmingham,

England, who has substantially adopted the tactics of Prof. Koch in the treatment of tuberculosis. The plan consists essentially in effecting the destruction of organic matter in sewage by means of bacterial life, aided by the oxygen of atmospheric air. A sufficiently large filter-bed is prepared by the use of pebbles covered with coarse sand, pipes being distributed throughout the layer of pebbles, through which air under moderate pressure is constantly forced to maintain the vitality of the bacteria. In a comparatively short period, these pebbles are incrustated with a layer of bacterial growth, and in the course of a month's time the filtered water is practically freed from all dangerous products, and may be freely used for dietetic purposes. The plan has already been successfully employed, and if the future may be judged by the past, it is probable that sewage filters and water purification may stand side by side in all the large cities.

It seems desirable in this connection to repeat what the writer has called attention to elsewhere, namely, the mistaken notion which exists in regard to action of the air upon decaying organic matter; alone, this oxidation is slow and uncertain, but with the added influence of microbes, it is rapid and complete. We must bear in mind that here we have the advantage of the addition of water, which also contains a considerable percentage of oxygen. It is a long time since much has been claimed for the microbes as an aid to the digestive functions, but if the investigations referred to should prove correct, it might be used to bolster up that theory; but should this theory gain the ascendancy it would by most unfortunate for the bacteriologists, because it would demonstrate that bacterial life is essential, and is Nature's chief dependence in arresting and controlling decay.

The original papers in this issue will repay careful perusal and study; they contain much information of practical value.

*STUDIES OF THE BLOOD.*

It is only within recent years that bacterial investigations have given a renewed interest in studies of the blood, and in the near future it is apprehended that much valuable information may be thus obtained. The comparative ease with which the malarial cachexia may be established by microscopical examination of the blood has opened up a promising field for future investigators in the department of therapeutics. Indeed, in this department alone, it is but reasonable to assume that the use of the microscope will, in the course of a few years, be the means of revolutionizing methods of practice which are now in vogue, since it is evident that this work may be largely extended, and will probably include most, if not all, of the contagious or so-called infectious diseases.

No little attention has been given to the examination of the urine, the fecal discharges, the expectoration and other secretions, while the blood has received but slight consideration; but the knowledge thus acquired will be used to advantage in the direction indicated. In this connection may be mentioned the recent action of the Board of Trustees of the State Hospital for Epileptics at Gallipolis, Ohio. An elaborate bacteriological laboratory has been established there under the direction of Professor Bolton, of the Johns Hopkins University, for the purpose of making an exhaustive study of the patient's blood before, during, and after epileptic paroxysms. This is a step in the right direction, but it covers such a limited field, comparatively, that but little benefit may be expected by the general practitioner. Another, and perhaps a more important series of investigations has been set on foot by the action of the Colorado State Medical Society, by their offer of a prize for the best and most comprehensive essay relating to the demonstration of tuberculosis by means of studies of the blood. This offer is published in another department of the journal, and in refer-

ring to the subject here, we desire to express our high appreciation of the wisdom and forethought of this young but vigorous association, suggesting at the same time that this prize, instead of being limited to one hundred dollars, should be made at least five hundred or one thousand dollars.

When we take a comprehensive view of this important subject, recalling the far-reaching influence which any definite and reliable discoveries may have upon the present and future generations, it is just probable that the scope of this inquiry is rather too limited, since a microscopical examination of the various secretions, together with a thorough investigation of the lymph-vascular system should be included with a view to supply corroborative evidence of the claims made by the different competitors; and it will doubtless be found advisable to adopt this additional proviso in order to enable the committee having the matter in charge to arrive at some satisfactory conclusion in disposing of the prize.

*LUNACY STATISTICS.*

The report of the English Commissioners in Lunacy, recently issued as a Parliamentary paper, presents statistics showing that insanity and idiocy are increasing in England and Wales in a much greater ratio than the population at large. Whatever may be the condition of affairs in this and other countries, the report in question brings out the unpleasant fact that never in the history of the United Kingdom has there been such a large number of persons requiring the attention of the Commissioners. At the end of the last year the total number of lunatics, idiots and persons of unsound mind in these two countries amounted to 92,067, being an increase of 2245 over the number reported at the close of the preceding year. The record shows an increase of nearly two and a half per cent., but it is probable that there has been comparatively slight

increase in the provincial districts, since it appears that this activity is principally confined to the larger cities, London alone showing an increase of about twelve per cent.

While these statistics are calculated to stimulate investigation on the part of political economists to effect numerous reforms, it remains for the physician to point out the direction in which the initial steps should be taken; it is the function of the medical profession to demonstrate where and how these necessary reforms are to begin, and this brings us to make a practical application of the questions relating to this important subject as they exist in the United States, since it must be apparent that the mental status with us cannot materially differ from that which prevails abroad.

The London newspapers claim to have fathomed the mystery surrounding the present condition, some of them at least, and we are informed that the rapid increase of the insane is due to the remarkably hot summer which occurred last year. This is, indeed, a flimsy excuse, when we take into account the large number of persons who were for months out of employment, who suffered day after day for want of the necessities of life, and who, in addition, were constantly exposed to the wiles and seductions of those who felt themselves called upon to reform the then existing state of affairs. With little to eat, and much of that unsuited to their wants, poorly clad, and crowded into cramped and unsanitary tenement houses, kept in a constant state of frenzy by political and social agitators, we can readily understand how it happens that insanity and crime increase *pari passu* with the population of the larger cities. Still, the difficulties are not insuperable; the condition is one calling for active work by those in authority, and in conjunction with the aid of Christian and educational influences the tide which now threatens the social fabric may be turned into channels which shall tend to up-build and strengthen instead of undermining and destroying our political organizations as countries, states and municipalities.

### WHO OWNS THE PRESCRIPTION?

The editor of our esteemed contemporary, *The Medical News*, takes exception to the claims of a contributor to the *American Journal of Pharmacy* for asserting that the directions of the physician writing a prescription that is not to be renewed is both "useless and presumptuous," and in his usual vigorous style leads the recalcitrant pharmacist a merry dance.

It is generally said that the failure of the pharmacist to "observe the explicit instructions of the prescriber would be a breach of faith that could not be condoned, and would not be tolerated. The question as to who owns the prescription frequently comes up, and has met with different interpretations at various times, but from the standpoint of the physician there can be no question. It belongs to him and no one else; and if he sees proper, he can morally and legally require the pharmacist to return it to him as soon as he has filled the order. The patient does not pay the doctor for the prescription; the financial transaction covers the advice alone, and if he so prefers, the physician may supply the medicine direct, and this appears to settle the controversy. Unless the patient makes a special bargain to receive the formula for the medicine prescribed, evidently he has no right to it, and cannot compel the prescriber to give it; and as regards the pharmacist, he is not directly concerned in the transaction.

It is rather unfortunate that such a state of affairs should exist, and it is to be hoped that in the near future the two professions may come to treat their respective members with due courtesy and respect, thus relieving the present strained relations which have existed for some time past. The present abnormal condition is undoubtedly due to the craze among the laity to get something for nothing, and they seem to accomplish this by inducing the accommodating druggist to re-fill their prescriptions—not only for themselves, but for their relations and friends.



## Therapeutic Memoranda.

**ARSENATE OF LEAD AS AN INSECTICIDE.**—It is well known among farmers and others engaged in bucolic pursuits that Paris-green is one of the most efficient insecticides, but it is not always successful, and moreover, it not infrequently injures the delicate foliage. This new competitor, arsenate of lead, is said to be more reliable, and can be used in considerable strength without in the least doing harm. A solution containing twenty-four pounds to one hundred and fifty gallons of water has been used without injury to the leaves of delicate plants. This fact points to its successful employment in the treatment of diseased conditions, not only externally, but internally, and if some enthusiastic chemist will put it on the market, no doubt it will readily find investigators.

**ORCHIDIN.**—As a substitute for "Sequard," Poehl has presented orchidin, a sterilized aqueous extract of the testicles, which is said to be free from albumen and to contain the full proportion of leucomaine. The preparation readily undergoes decomposition and must be kept in sealed glass tubes, but produces no reaction when given subcutaneously.

**OPERATION FOR STONE IN THE BLADDER.**—In the *International Magazine* for February, 1894, Professor William T. Briggs, of Nashville, contributes a most interesting and instructive article giving an account of two hundred and eighty-four cases of stone upon which he had operated. His preference is for a modification of Civiale's operation (median), first suggested in 1829, designated the medio-bilateral method. This special operation he has done one hundred and seventy-one times with but four deaths, and three of these were attributable to other causes than the operation.

The advantages claimed for the medio-bilateral operation are: That it opens up the shortest and most direct route to the bladder; divides parts of the least import-

ance; almost a bloodless operation; affords a sufficiently capacious passage for the removal of any calculus; and finally, reduces the death-rate to a minimum. The surgeon will appreciate the great advantages of this operation when it is stated that it can be done with the loss of not more than an ounce of blood. While lithoplaxy is recommended in certain conditions—namely, when the patient is an adult with a capacious and tolerant urethra, with a bladder free from severe chronic cystitis, and with a small or medium-sized stone, or if large, of soft consistence—the supra-pubic operation is regarded as the best for large and hard calculi. In all other conditions, the medio-bilateral is said to be the easiest, safest and best.

**CHOREA A SPECIES OF RHEUMATISM.**—The rheumatic nature of chorea formed the subject of Sir Dice Duckworth's paper read before the Eleventh International Medical Congress, held in Rome last April. The author cited numerous instances in which there was absolutely no difference between rheumatism and chorea, and claimed that it was impossible to distinguish either during life or after death any difference between endocarditis due to rheumatism and that which is supposed to be due to chorea. The various causes assigned for the production of chorea, such as shock, mental overwork, or physical emotion, he said, could only produce the disease in those who had inherited rheumatism, and as the manifestations of rheumatism were now very properly recognized when occurring in other parts of the body besides the joints, so he concluded that chorea might be considered as a variety of rheumatism specially affecting the brain.

**THE ANTIDOTAL ACTION OF POTASSIUM PERMANGANATE.**—As foreshadowed in this journal some months ago, the value of potassium permanganate has been demonstrated clinically, not only in the case of morphine and opium poisoning, but in the case of strychnine as well. Dr. Sevier

(*Medical World*, June, 1894), of Richmond, Mo., reports an accident to his dog from snake-poison where the permanganate was be depended upon to counteract the effect of poisoning from potassium cyanide, also oxalic acid and colchicum. Evidently this is a most important re-discovery, as we pointed out in the previous article that this matter had been taught in the Philadelphia College of Pharmacy—and probably in other colleges of this class—for many years. This prompts the observation that many good things are daily slipping away from us in the direction of therapeutics. The subject is so vast that no one man can make a full collection, because this information is so scattered throughout the different medical journals. And this complaint seems to be warranted notwithstanding the elaborate character of the dispensatories and the exceptional fulness of the various text-books.

**COPPER AS A CONSTITUENT OF EXTRACTS.**—It will no doubt be a surprise to sticklers for pure drugs to learn that in a large percentage of extracts copper is to be found, and further, that some extracts cannot be produced free from copper. In an elaborate paper recently published (*Pharm. Zeit.*, xxxix, 30), the author shows the exact weight of copper in milligrams discovered in the different extracts. For example, in the herb, *cannabis indica*, there are no less than 24 milligrams per kilo in the extract, while there is but 11 milligrams in extract of *conium*. Extract made from the leaves of *belladonna* contains 29 milligrams per kilo, and that from the seed of *nux vomica*, 24 milligrams, with 16 in extract of *secale cornutum*. The subject is mentioned here for the reason that it may influence practitioners when prescribing these remedies, rather than because of the danger from the small percentage of copper contained. In addition, however, it must be borne in mind that these extracts have constantly presented the modicum of copper, and hence the physiological actions and the therapeutic properties are, to a limited ex-

tent, mingled with the physiological actions and therapeutic properties of copper and its salts. It will doubtless be an interesting item for those who insist upon the exclusive use of the alkaloids, and we shall await with interest the comments of the followers of Burggreave.

**INFLUENCE OF ERYSIPELAS UPON MALIGNANT TUMORS.**—Dr. William B. Coley, of New York, who has, during the past two years, been making investigations in regard to the influence of erysipelas toxines upon malignant tumors, publishes an exhaustive paper in the July number of the *American Journal of the Medical Sciences*. A series of tables is added giving a record of the cases treated, with results, and his contribution ends with the following conclusions:

1. The curative action of erysipelas upon malignant tumors is an established fact.
2. This action is much more powerful in sarcoma than in carcinoma.
3. This action is chiefly due to the toxines of the erysipelas streptococcus, which may be isolated and used with safety.
4. This action is greatly increased by the addition of the toxines of the bacillus prodigiosus.
5. The toxines, to be of value, should come from virulent cultures, and should be freshly prepared.
6. The results obtained from the use of toxines without danger are so nearly quite equal to those obtained from an attack of erysipelas, that inoculation should rarely be resorted to.

The author believes that the success in the cases reported has been largely due to the combined action of the two germs. There are two methods of preparing these toxines, as follows: The germs may be grown separately in bouillon three or four weeks, then filtered through porcelain; another method consists in growing the streptococci ten days in bouillon, then adding bacillus prodigiosus, which is then

allowed to remain two weeks longer. Finally the bouillon is filtered and is said to be exceedingly active, ten to fifteen minims being sufficient to give a temperature of from 103° F., to 104° F. Dr. Coley is of the opinion that these tumors are of microbic origin.

**POTASSIUM BICHROMATE IN DIGESTIVE DISORDERS.**—Apropos of the extracts from an article recently published by Professor Fraser, of Edinburgh, bearing upon the use of potassium bichromate in indigestion, the following, copied from *Dynamical Therapeutics*, (Dr. H. T. Webster, Oakland, California), will be of interest.

"The entire alimentary canal is influenced by this remedy, from the pharynx to the colon as far as the sigmoid flexure. It heals chronic ulceration of the pharynx, even if syphilitic, and is applicable to gastric catarrh, even when this has gone on to organic change in the mucous membrane of the stomach. It is one of the remedies which acts positively in the treatment of round ulcer of the stomach, effecting a cure in some cases, I am certain. In dyspepsia, with gastric catarrh and yellow coating of the tongue, it has been considered *the remedy par excellence*.

"In muco-enteritis, it is a useful remedy, and in some acute diarrheas, such as sometimes occur during the winter months, attended with much pain and tenesmus, it acts like a charm in relieving, and seems to be about the only remedy that will cure promptly in such cases, . . . It is valuable in chronic diarrhea, and seems to exert a favorable influence over the recuperative power of the alimentary mucous membrane, encouraging restoration."

**MORPHINIZED PROTOPLASM.**—This is a term applied to the pathological condition found in cases of chronic intoxication with morphine, and it is claimed by Danilewski, of St. Petersburg, that we may with certainty affirm the existence of an alcoholized protoplasm in drunkards. Further-

more, this authority asserts that the existence of arsenic in the protoplasm of those given to eating this substance can no longer be questioned, and assigns as a reason for his belief the fact that the continued use of stimulant, narcotic and alterative substances, produces a peculiar influence upon the organism, so that without them it is not at peace.

In the address from which the foregoing is extracted, entitled, "The Ground Substance of Protoplasm and its Modification by Life," at the meeting of the Eleventh International Medical Congress, Rome, Danilewski presents some suggestive arguments which will be read with special interest by those who have followed the teachings of the *Therapist* during the past two years, and we therefore, copy the following paragraph from a late issue of the *British Medical Journal*:

"The material basis of all vital phenomena, without exception, is the protoplasm. This is the invisible source of the feeling of health. If its plastic action is manifest in the development of the embryo, on the other hand, this shows itself only indirectly in the phenomena of life. The active principle is protoplasm, that molecular chemical complex which shows in its physio-chemical properties the features proper to the chemical complex in general. The protoplasmic complex is a whole, and not a simple mixture of its constituent parts. If the protoplasm is living it acts on an entity which does not allow its individual parts to be seen in the working of its vital activity.

"Albumen being the principal constituent of the protoplasmic complex, and in view of the differences in albuminous substances in different parts of the forms of protoplasm, it can be understood that the quality of the albumen determines the kind and character of the vital activity, and that the phenomena of life depend, on the one hand, on the fundamental properties and the nature of the functions of protoplasm, and on the other, on the chemical constitution of the albumen."

Let us hope that this subject may invite further investigation on the part of experimental physiologists, and that it will result in the more careful and judicious administrations of remedial agents, more particularly those which are recognized as coming within this category, namely, stimulants, narcotics and alteratives.

## Current Literature.

### MASSAGE AND THE BLOOD.

From a carefully constructed and thoughtful contribution on this subject, contributed by Dr. J. K. Mitchell to the *American Journal of Medical Sciences* (May, 1894), we extract the following:

The certain results are: In health, massage increases the number of red corpuscles, and to a less degree and not so constantly their hemoglobin value.

In all forms and grades of anemia there is a very constant large increase in the number of red corpuscles after massage; this is greatest at an interval of about an hour, after which it slowly decreases. This decrease is postponed more and more if the manipulation be daily repeated. An improvement also takes place in the general tone of the circulatory and muscular systems.

There is an occasional but inconstant increase in the hemoglobin value, and this increase is proportionately less great than that of the cellular elements.

It has been doubted if so powerful and fatiguing a method of treatment as massage is safe or desirable in very high grade anemias. It is now for the first time made clear that it is of great and certain service and without danger in such cases, no matter how feeble.

It is evident, too, that our present definitions of anemia are insufficient. An essential part of the description in all of them is that there are defects of number, of color, or of both in the blood. This is not necessarily or always true. The fault may lie in a lack of activity or of availability in the corpuscles. The state of things in the system may be, to draw an analogy from economic conditions, like the want of circulating money during times of panic, when gold is hoarded and not made use of, and interference with commerce and manufactures results.

Lastly, neither an anemic appearance nor a blood count is alone enough for a

certain diagnosis. Other signs must be used as a check on the blood examination for the establishment of the existence of anemia. For instance, many cases here recorded had full normal or even supra-normal corpuscle-count, with a good percentage of hemoglobin. Yet they presented every external sign of poverty of blood: pallor of skin and, more important still, of mucous membranes, cold extremities, anorexia, indigestion, dyspnea on trifling exertion. In such cases we must suppose either that the total volume of the blood is reduced, or that the usefulness of the corpuscles is in some way impaired, or that both these troubles exist together.

The white corpuscles have not received sufficient attention in this study, although it seems as if in most cases they were increased as well as the reds.

Next, as to general conclusions: It is possible that even in health there may be a certain varying percentage of corpuscles out of the moving current of the blood. If so, where are they, and what are they doing? We know by direct observation that all corpuscles do not travel with the same rapidity, that some loiter and delay. Our studies prove clearly enough that a great number of cells may be brought rapidly into the circulation by massage, and it seems at least probable, as Dr. Pearce has suggested to me, that those thus thrown into the current have less hemoglobin value than the ones already in movement. This is a possible inference from the fact that corpuscular increase does not imply an addition of hemoglobin, or at least not a proportionate addition. Have some of the globules thus cast into the hurrying stream of the blood been delaying to take up or unload their freights of coloring matter or oxygen? Do corpuscles in states of disease behave differently toward hemoglobin, so that they absorb it less well, or transport it less successfully, or give it up with abnormal readiness? Some forms of anemia may be due to an increased delay on the part of such cells as these, lingering sluggishly about their business, and

only pushed and forced into greater activity and usefulness by the direct stimulus of massage. Whether these globules are immature ones or ones that have been made use of to the extent of their capacity also remains to be discovered.

Even when direct anemia has been caused by hemorrhage, a part of the result may be due to the inactivity of a certain number of the corpuscles, and we may find in massage a valuable aid in the treatment of such cases, both by the impetus it will give to cells indisposed or disabled for free movement, and by stimulation of the making of corpuscles. I hope soon to publish some facts as to the application of manipulation to such disorders.

The excess in amount of blood brought into the circulation by massage may be one of the reasons why in occasional sensitive patients we see such discomforts as headaches follow its use. Practically, we have added a certain number of millions of cells to their tissues, and need not be astonished if some signs of plethora result.

It is evident that massage has complex effects and that the numerical increase of the corpuscles, the added hemoglobin value, and the better circulatory and muscular tone, may be due to many causes operating together—a vasomotor nerve stimulation, a direct hastening of the venous currents, an indirect hastening of arterial flow, an improved metabolism, are only some of them.

#### GELSEMININE IN NEURALGIA.

The following is one of a series of valuable therapeutic notes contributed by Dr. A. A. Eshner to the Philadelphia *Polyclinic*:—Some two years ago, at the suggestion of Prof. Da Costa, I looked about for an active principle from gelsemium sempervirens that should represent the peculiar and well known anti-neuralgic properties of the preparations of the crude drug. On inquiry, I found an alkaloid called gelseminine, which, I was informed, was a “powerful poison—producing, in exces-

sive doses, convulsions, and death by paralysis of respiration.” It was further stated that the alkaloid, as well as its salts, had been employed as an anti-neuralgic in doses of from gr.  $\frac{1}{100}$  to gr.  $\frac{1}{50}$ . As opportunity offered, from time to time, I prescribed the alkaloid, and, as a rule, with satisfactory results. The number of cases is, however, not sufficiently large to base final conclusions upon; nor have I had the opportunity for a systematic and comparative study of a large series of cases; nevertheless, the results obtained have been sufficiently encouraging to justify the further employment of the remedy, and it is with this end in view that this brief note is published. A thirtieth of a grain can be safely administered thrice daily. I have observed no evil effects from this dose.

#### SALICYLATED IRON MIXTURE.

From the medical clinic of S. Solis Cohen, M.D., the following practical note is contributed to the Phila. *Polyclinic*:

**R**—Sodii Salicylatis.....3 iv.  
Tinct. Ferri Chloridi.....f3 iv.  
Acidi Citrici.....grs. x.  
Glycerini.....f3 iss.  
Ol. Gaultheriae.....m viij.  
Liq. Ammon. Citratis. q. s. ad. f3 iv.  
M. Sol. Sec. Art.....Dos. f3 i or f3 ij.

Dissolve the citric acid and sodium salicylate in the liquor ammoniæ citratis. To the glycerin add the tincture of chloride of iron, and then mix the two solutions, to which is finally added the oil of gaultheria. One or two drachms of mucilage of acacia would be a valuable addition with which to emulsify the oil of gaultheria.

In this prescription, reaction takes place between the ferric chloride and sodium salicylate, resulting in double decomposition, giving salicylate of iron in first solution. Care should be taken to keep the liquor ammoniæ citratis in slight excess, in order to have a perfectly clear solution of salicylate of iron.

Dose.—One or two teaspoonfuls.

This prescription, known as the *Mistura Ferri Salicylata* (salicylated iron mixture)

is used principally in the treatment of chronic cases of rheumatism or rheumatoid arthritis in which anemia or other evidence of impaired nutrition is a distinct feature. It is likewise employed in acute tonsillitis of rheumatic origin, and in acute articular rheumatism in anemic subjects, especially if the patient has suffered from one or more previous attacks.

The ordinary dose in chronic cases in adults is a dessertspoonful four times a day; in acute cases, the same dose is given every two hours until tinnitus is produced or decided amelioration has occurred, when the dose is diminished or the intervals between doses lengthened.

### TREATMENT OF PILES.

From a readable review of this affection and its treatment, in *Matthew's Medical Quarterly*, we quote these practical recommendations:—If protruding external piles are accompanied with much pain, some complication exists, usually ulceration. Washing with hot water will be found very agreeable, to be followed by the following prescription, which contributes much to relief:

R. Cocaine.....gr. vij.  
Ext. opium.....gr. xx.  
Ext. belladonna.....gr. xvj.  
Lanolin.....oz. j.

Mix. Apply after washing. Then return mass.

At bedtime use the following suppository:

R. Iodoform.....gr. iv.  
Morph. sulph.....gr. ½.

Make into a suppository, and insert at bedtime.

Itching is often mistaken for piles; if itching is a most prominent symptom, it will most likely be found to be pruritis. If with piles we have an itching of the surrounding parts, the following is suggested:

R. Vaseline.....oz. j.  
Ichthyol.....dr. j.

Mix, and apply often.

### THE TREATMENT OF DELIRIUM TREMENS.—

The *New York Med. Journal*, July 21st, 1894, contains an instructive article by Dr. Russell Bellamy, of Colorado Springs, in which he details a plan of treating delirium tremens adopted by him with unusual success during his term of service in the alcoholic wards of Bellevue Hospital, N.Y. An extreme hypnotic and feeding plan was

adopted, but in the selection of a hypnotic remedy, some difficulty was experienced in deciding between the dangerous Magendie solution, the rapid but uncertain hyoscine hydrobromate, the powerful depressant chloral, and the almost inert bromides or their combinations. It was at that time that the author's attention was called to Trional, which he employed exclusively in twenty-five cases with extremely satisfactory results. The mode of treatment was as follows:

Immediately on the admission of a patient a calomel purge and twenty grains of Trional mixed in water, with ten minims of tincture of capsicum to hasten absorption, were administered, and, if the condition would warrant, a very hot bath was given, its temperature being gradually lowered. The patient was then placed in a bed in a well-ventilated room and restrained with sheets and shackles. If the delirium showed no signs of abatement in thirty minutes, ten grains of Trional were given. If this had no effect in an hour, twenty grains were added. In nearly every instance in the cases reported, sleep followed the administration of fifty grains, and the pulse and respiration were stimulated. The drug can be administered either as a mixture with water, in capsules, dry on the tongue, or by rectum.

In several cases, on account of the feeble and weak condition of the pulse, digitalis—preferably the fluid extract—was administered. Beyond Trional in a limited number of cases, no medication was given except a routine tonic consisting of strychnine with a mixture of the vegetable bitters and ammoniated tincture of valerian. In no case was a marked depressing effect from Trional observed. Possibly on account of the ethylic and methylic elements in its composition, the drug acted as a cardiac stimulant rather than, as was supposed by many, a depressant. As, according to Dr. Bellamy's experience, a moderately high temperature is almost a constant accompaniment of severe delirium tremens, it is important to note that in no case did the temperature rise above 102°, consequently the drug certainly possesses antipyretic properties. In all cases forced feeding, in small quantities often repeated, was followed, the diet consisting of milk, eggs and soups.

## Book Notices.

**A MANUAL OF THERAPEUTICS.**—By A. A. STEVENS, A. M., M. D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania; Demonstrator of Pathology in the Woman's Medical College, Philadelphia, etc. Prepared especially for students as an outline of modern therapeutics to be filled in by larger works, together with an article on Incompatibility in Prescriptions, by JOSEPH W. ENGLAND, Ph. G. Cloth, 12 mo., pp. 435. Philadelphia: W. B. SAUNDERS, 1894. Price, \$2.25.

The typography of the book is excellent, binding neat, and paper of good quality. Beyond this there is little for compliment. The drugs are arranged alphabetically and under each is given the preparations, physiological action, toxicology and therapy. The work is divided into four sections: Physiological Action of Drugs, Drugs, Remedial Measures other than Drugs, and Applied Therapeutics. Following this is a table of doses, an index of drugs and an index of diseases.

Unfortunately there is such a large amount of valuable knowledge omitted from the chapter on drugs, and the outline is so brief, that the student would derive little benefit from it. As a text-book it is very poor, and the following subjects receive no consideration and some no mention in the entire work: Absinthium, acacia, ammoniacum, amygdala, amyllum, arsenite of copper, aurum, barium, bryonia, calendula, crocus, elaterium, fel bovis, iris, mentha, petrolatum, phytolacca, pulsatilla, rhus toxicodendron, santonica, sapo, viburnum, and sixty-seven more or less important drugs mentioned by the pharmacopeia of 1890. It is to be regretted that a proprietary remedy such as antipyrine should receive the space of two pages for its consideration, while acetanilid, an official remedy, receives less than one page, the student being referred to the former drug for its toxicology and therapy. In pointing out the toxicology of belladonna and some other drugs the author makes no mention of physiological antagonists.

There is no mention of the use of potassium permanganate in opium poisoning. Nor is there any reference made to the therapeutic uses of organic extracts.

Why is it that so many authors persist in using figures to express numerals instead of using the technical abbreviation or spelling in full?

Some very good points are brought out in the section on applied therapeutics, but they would not be clear and concise for students' use. Diarrhea, cholera morbus and cholera infantum receive the antiquated, unscientific and obsolete treatment with opiates, in the majority of instances, although mention is made of intestinal antiseptics.

Prescriptions must always be presented to a student as technically correct and the proper case-endings should be required for every drug, while the preparation may be represented by the authorized pharmacopeal abbreviation. Formulæ in text-books should always have full case-endings, as they stand as examples of technically correct literature, or, if not, they should so stand. This work has few technically correct prescriptions. Such important classifications of remedies as hypnotics, anodynes, narcotics and anesthetics, although considered in the text, are not indexed.

The article on "Incompatibility in Prescriptions" is well written and covers the subject fully, yet briefly.

The entire manual presents evidence of very hasty preparation, and as a complete or semi-complete reference or text-book for students, is not entitled to high commendation. S.

**ESSENTIALS OF PRACTICE OF PHARMACY.**—Arranged in the form of questions and answers. Prepared especially for pharmaceutical students. Second edition, revised. By LUCIUS E. SAYRE, Ph. G., Prof. of Pharmacy and Materia Medica, of the School of Pharmacy of the University of Kansas. Cloth, 12 mo., pp. 200. Philadelphia: W. B. SAUNDERS, 1894. Price, \$1.

A very complete work of its kind, revised to correspond with the United States

**Pharmacopeia of 1890.** It covers in a brief and concise manner the whole subject of pharmacy, and is a valuable text-book for students as well as busy practitioners. A very good feature of the book is the research questions, which add materially to its completeness. Among features included in the new edition are: An outline of drug and plant analysis, structural formulæ of organic carbon compounds used in medicine, problems in allegation and specific gravity, etc. The work is plainly printed, on good paper, and is suitable for pocket use. S.

**ESSENTIALS OF DISEASES OF THE EYE, NOSE AND THROAT.**—By EDWARD JACKSON, A. M., M. D., and E. B. GLEASON, S. B., M. D. Second edition, revised. Cloth 12 mo., pp. 290. Philadelphia: W. B. SAUNDERS, 1894. (Price, \$1.00.)

This is one of the series of excellent quiz-compendis issued by Saunders. While intended mainly for the medical student, they are so arranged as to be of value to the general practitioner, being intended for ready reference.

Part I, on diseases of the eye, although from the pen of so lucid and able a writer as Dr. Jackson, in the opinion of the writer, can prove of but little value to the practitioner, except as a dictionary of terms. The subject of eye diseases and their treatment is a little too complicated and difficult to stand condensing to this extent and still be a guide. To the student preparing for his examination, however, it will be a most valuable aid.

Part II, by Dr. Gleason, treating of diseases affecting regions not by any means so delicate is much more satisfactory from the practitioner's point of view. Suitable illustrations of the various instruments employed are presented in connection with concise explanations relating to their applications. A number of formulæ found serviceable by specialists in this line occupy the last few pages, the whole completing a volume convenient and desirable to have "handy" on the bookshelf.

## PUBLICATIONS RECEIVED.

**Functional Constipation.** By W. BLAIR STEWART, M.D., of Atlantic City, N. J. Reprint, 1894.

**Alumni Oration.** Delivered before the alumni association of the Medico-Chirurgical College of Philadelphia. By Hon. CHARLES EMORY SMITH, of Philadelphia. Reprint, 1894.

**Scorbutus in Infants.** By W. P. NORTHRUP, M.D., and FLOYD M. CRANDALL, M.D., of New York. Reprint, 1894.

**The Strychnine Treatment of Pulmonary Consumption.** By THOMAS J. MAYS, M.D., of Philadelphia. Reprint, 1894.

**Conditions Justifying removal of the Testicle in Radical Operations for Inguinal Hernia: With a report of three successful cases.** By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

**A New Method for Reduction of Fractures of the lower end of the Radius.** By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

**The History of the Park Boulevard and the Financial Condition of the City of Philadelphia.** By THOMAS L. HICKS, Esq., of Philadelphia. Reprint, 1894.

**Immediate Capsulotomy following Removal of Cataract.** By L. W. FOX, M.D., of Philadelphia. Reprint, 1894.

**Cholera: Its Prevention and Treatment.** Typhoid Fever: Treatment. By ELMER LEE, A. M., M.D., of Chicago. Reprint, 1894.

**The Rocky Mountain Region, especially New Mexico.** By FRANCIS W. GALLAGHER, M.D., of El Paso, Texas. Reprint, 1894.

**The Therapeutic Uses of the Salts of Cesium and Rubidium.** By THEO. W. SCHAEFER, M.D., of Kansas City, Mo. Reprint, 1894.

## ANNOUNCEMENTS.

**Western Pennsylvania Medical College.** Medical Department of Western University of Pennsylvania. Circular of Information.

**University of Pennsylvania.** Circular of Information. New Four years' course in the School of Biology. 1894-95.

**University of Pennsylvania.** Catalogue for Session of 1894-95. 129th Annual Session. Department of Medicine. 1894.

**University of Kansas.** Catalogue of the School of Pharmacy, for the Collegiate year, 1893-94: also announcements for 1894-95. Lawrence, Kansas, 1894.

**Union Mission Hospital, Philadelphia.** JOHN B. STETSON, Founder and President. A series of reports. May, 1894.

**Bellevue Hospital Medical College, of the City of New York.** Circular of Information: Session of 1894-95.

**University of Buffalo.** Medical Department. 49th Annual Announcement. Session of 1894-95.

**Medico-Chirurgical College of Philadelphia.** Announcement, 1894-95. Ninth Annual Report of the Medico-Chirurgical Hospital of Philadelphia. 1894.

**Baltimore University School of Medicine.** Annual Announcement and Catalogue. Session of 1894-95.

**Semi-centennial Annual Announcement of the Electric Medical Institute, Cincinnati, Ohio.** 100th Session, 1894-95.

**Announcement of the Eighth Annual Course of Lectures Instruction in Orifical Surgery.** Chicago Homeopathic Medical College. 1894-95.



## Miscellany.

**HEROIC MEDICAL EXPERIMENT.**—A German pathological journal records a recent experiment of Drs. Sowtschenko and Sobolotny which seems to border on the heroic. They vaccinated themselves with a preparation made from cultures of the cholera bacillus, and afterward swallowed virulent cholera germs with entire impunity. They inoculated guinea pigs, and found that those animals could thus be protected against cholera. Usually it is the guinea pig who has first to face the chances of life or death in experiments of this kind, but in this case the doctors were so sure they were right that they shouldered the risk themselves.

**CAOUTCHOUC-LANOLIN** (also known as *Lanolin-traumaticin*) is used extensively in German and French hospitals; it is prepared by dissolving 1 part caoutchouc in the required amount of chloroform, and mixing with 12 parts lanolin. It ought to make a serviceable ointment or plaster-dressing.

**HOSPITAL CAR.**—It is reported that the Central Railroad of New Jersey has equipped an Ambulance or Hospital Car, and has it now in service; it is manned by specially competent surgeons, supplied with all necessary surgical, antiseptic and medical appliances, and has the "right of way" if called to an accident or wreck. It will save much suffering, and many limbs and lives, if Hospital Cars are generally introduced and held available at not too far distant stations on all railroads in the country.

**LACTOPHENIN.**—Landowsky (*Sem. Med.*, Feb. 7th, *Med. Record*) has tried the effect in several cases, of lactophenin, a substance very closely allied chemically to phenacetin. This drug has antineuralgic properties analogous to antipyrin, and has, besides, a genuine hypnotic effect. The amount given daily was from sixty centigrammes to three grammes divided into several doses. The only disagreeable by-effects caused by the drug seemed to be diaphoresis and slight giddiness in a few of the patients.

**PARVA SED APTA.**—The city of Zurich, Switzerland, is about the size of Toledo, Ohio, and one-seventh the size of Philadelphia; but the press of the Quaker city is holding up the little burg as a fit model to follow. In 1884 when Zurich found typhoid fever in its water supply—a discovery, it is noted, made even earlier for Philadelphia—this little Swiss town set out to improve its supply, spent \$100,000 on new filters, \$200,000 on new reservoirs, and by using the water power thus secured, set up an electric light supply at a cost of \$235,000 and furnished light, arc and incandescent, at a profit of \$13,000. The Philadelphia *Press* pertinently asks: "We Americans think we are enterprising, but how long will it be before Philadelphia matches the work of this slow Swiss town and reduces its typhoid cases 90 per cent?"—*Journal Am. Med. Assn.*

### Dress Becoming; Maiden Daft.

THE AMERICAN THERAPIST comes out in a new dress, which is very becoming, although the left handed maiden in the right-hand corner appears a little daft. Perusal of the reading pages, however, shows that her influence does not penetrate the cover.—*Ohio Medical Journal.*

**A PRIZE ESSAY ON TUBERCULOSIS.**—We cheerfully give place to the following announcement:

Prize of \$100.00 voted by the Colorado State Medical Society (June 21st, 1894) for the best essay on the following subject.

THE DIAGNOSIS OF TUBERCULOSIS BY MICROSCOPIC EXAMINATION OF THE BLOOD.

Preference to be given to new evidence and the detection of the pre-tubercular stage. All stages however to be included and microscopically differentiated. Paper to be condensed to read in thirty minutes time; to be typewritten and the authorship kept secret till the award of the examining committee is made known. Prize open to any one; essay to be written in the English language in comprehensive style and as free from purely technical expressiveness as possible, accuracy of definition and clearness of diction considered. The committee to reserve the award for an essay they deem sufficiently meritorious, i. e. the rules to be observed enabling a diagnosis to be made from the blood alone without the patient being seen.

The following test is suggested as not unreasonable: seven persons being in one room representing a person in health, a case of anemia, one of leucocythemia, one of pre-tubercular and three representing the three stages of consumption; i. e., 1st, infiltration, 2nd, softening, and 3rd, excaration (advanced and extensive). In another room the microscopic examination of the blood of several of these to determine from whom the specimens were taken. It is expected that the ordinary use of the  $\frac{1}{8}$ ,  $\frac{1}{16}$ ,  $\frac{1}{32}$ ,  $\frac{1}{64}$  immersion lenses will answers. If not, or there is any doubt, full explanations as to instruments as lenses used should be furnished.

A prize committee of three was appointed.

Dr. CHARLES DENISON, H. A. LEMEN, both of Denver, and Dr. S. E. SOLLY of Colorado Springs.

All essays to be handed in by April 1, 1895, under seal.

**FOOD SYNTHETICALLY PREPARED.**—Prof. Berthelot recently granted an American reporter an interview, and his speculations on synthesis in its relation to food stuffs are reproduced in luxuriant verbiage in a recent issue of the *N. Y. Sun*. The subject is one of great possibilities, and has for years received the serious attention of the laboratories of European universities; but the reporter in this instance has helped actual scientific progress along with a little of his own vivid imagination. He quotes the Professor as describing, for instance, the probable manufacture of tea, coffee and cocoa, thus:

The scale of manufacture of synthetic ladder is as follows:

Carbon and oxygen make carbonic oxide.

Carbonic oxide and chlorine make carbonyl chloride.

Carbonyl chloride and ammonia make urea, whence uric acid.

Uric acid transforms into xanthine.

Xanthine yields theobromine.

Theobromine yields theine or caffeine.

And thus, he announces delightedly, you have cocoa (theobromine), tea (theine) and coffee (caffeine). Wonderful! Now, if that reporter can only worm out of the Professor equally specific formulas for corn juice and malt extract, he can return to Columbia and live a triumphal life of ease in Kentucky or Milwaukee.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. III.

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No. 3.

## Original Articles.

### RESEARCHES IN DIPHTHERIA.

By W. W. MYERS, A. M., M. D.

The history of diphtheria really commences with Bretonneau. It is pre-eminently a contagious disease, due to the bacillus discovered by Klebs. The point of infection chosen by this bacillus is almost always a mucous surface, the pharynx or the air passages preferably. There the microbe remains entrenched, never invading the organism or entering the circulation. It may be transplanted to many different points of the mucous or cutaneous surfaces, but causes only foci of local infection. But though the organism does not become infected in its entirety, it may be poisoned, for the bacillus produces a very active toxine, which is readily diffusible and penetrates the circulation.

Whether the disease be epidemic or endemic it is transmitted by contagion. Is this contagion indispensable to the development of the disease? In other words—may a healthy subject be attacked by diphtheria without taking the specific germ from a person affected with the disease? We reply in the negative. This contagion may be transmitted either directly or indirectly. Persons who have the care of a diphtheritic patient are often contaminated by the saliva or false membranes which the patient ejects.

Once diphtheria enters a house, unless checked by inoculation of *toxalbumin*, it has an undoubted tendency to propagate itself by contact from individual to individual, and it is not always necessary that the person who conveys the contagion

should have had the disease. This contagion possesses an inconceivable power of reproduction. The minutest drop of diphtheritic matter, or the effluvia from a living or dead patient, are sufficient to transmit the disease. Moreover, the moribific germs, like certain volatile substances, which, for a longer or shorter period, cling to the vans in which they are shut up, or the rooms in which they have been placed, has an action vast and beyond all appreciable limitation, a divisibility which is infinite; the most imperceptible atom is sometimes sufficient to engender the disease.

At what stage of the disease is it contagious? It is so in the *highest* degree when the false membranes are present.

Now the resistance of the diphtheritic bacillus is relatively feeble in the living organism and rarely preserves its virulence longer than one or two months in one convalescing, but it has a longer vitality under other circumstances. The contagion may cling to objects of bedding, furniture, etc., and maintain all its virulence for years, unless the *proper* disinfection has been performed.

There are certain pseudo-membranes, products which are sometimes confounded with *true* diphtheria, although they differ in concomitant symptoms.

Bacteriology alone can settle any doubt in this matter, viz., by showing that these false membranes are devoid of the *bacillus*. There are several bacteria which are capable of provoking fibrinous exudations which undergo organization into false membranes; among these are the golden and white staphylococci, and the streptococcus pyogenes.

One of the principal characters of this

false membrane is its ability to reproduce itself repeatedly. When it is removed, the mucosa underneath remains at first bare, but in the course of a few hours the fibrinous exudate is re-formed; and this process will go on as long as the disease lasts. This false membrane has the property of being essentially invading; it rarely remains localized to the point where it first forms, but spreads to contiguous regions; starting in the throat, it ascends the nasal fossæ, or spreads downward into the trachea.

Most cases of diphtheria are due to *direct* contagion, whether by means of fresh or dried virus. Experiments in the laboratory have proven that a saprophyte microbe may become pathogenic; as the result of my observations this contagiousness depends more on the virulence of the poison than on an insufficient isolation. Experience shows that the methods of isolation commonly used are insufficient in *severe* cases, and that they are unnecessary in *slight* ones; the danger for children to catch the disease is fortunately small (with the exception of virulent forms), whereas the disposition for catching measles by contagion is 99 per cent., and in scarlet fever 30 per cent. of the cases. The disinfection of the houses is easy where the disease is slight, but very often very difficult in the more dangerous cases. The disinfection of apartments that have been occupied by patients suffering from the above contagious diseases is of great importance. While linen, clothing and bedding can be easily disinfected with steam, with or without pressure, the walls, ceiling and floors are the great difficulty. Corrosive sublimate, besides being a dangerous poison, is not efficacious when the surfaces are *not* smooth. The essences are valuable antiseptics, but it requires several days before some pathogenic germs are destroyed. Peroxide of hydrogen acts better than ozone, and destroys the germs rapidly if applied with a sponge, but it is expensive. From numberless experiments I find that chloride of lime in the proportion

of 10% at a temperature of 40° to 50° C. is the *best* and *cheapest* disinfectant.

Diphtheria very often sets in mildfy. If there be any fever during the first twenty-four hours, or first two days, it soon ceases or becomes insignificant. The existence of the disease is hardly announced by a slight difficulty in swallowing. The difficulty of breathing comes later; but by the time it has come, the disease has reached the larynx, and will ere long, a little sooner or later, suffocate the patient. In so terrible a disease the prognosis is necessarily unfavorable in the last degree. Left to itself it is almost inevitably fatal.

A special form of diphtheria may be contracted with an individual suffering from the ordinary form, just as confluent small-pox may be taken by contact with one who has had the distinct form of the disease.

The continuous mode in which the invasion of diphtheria takes place has this peculiarity that it generally advances from above downwards.

The diphtheritic paralysis is caused from the poisoning of the system by the morbid principle which generates the disease on which the paralysis depends; it originates in disturbance of the nervous system, in the modality to which it is subjected.

From the beginning of the attack, the lymphatic glands at the angle of the jaw are turgid. This is an almost *invariable* phenomenon, or at least, it is not wanting once in ten times. Its importance is great, for in cases of common membranous sore throat, this glandular engorgement is *entirely* absent.

There is a period in which *modified* is always identical with *natural* diphtheria; viz., the period of invasion. However much attention we may bestow upon the initiatory phenomena of the disease, it will be impossible to establish a difference between symptoms of each during that period.

The influence which *toxalbumin* exerts on the economy and the modifications which it imprints on the organism, being

necessarily subordinate to the predisposition acquired by the organism under the diphtheritic influence, it necessarily follows that a *second* inoculation will produce on the economy various effects proportionate to the degree of immunity previously conferred upon it, and which it still possesses more or less completely.

This diphtheritic *toxine* is derived from certain constituents of the bodies of the specific bacilli. It is decomposable into two substances, one of which produces cachexia in an animal.

It is my impression that the use of pure cultures by inoculation by no means corresponds with the use of pepsin and pancreatin for the relief of certain forms of indigestion. From experiments bearing upon this subject, we are led to the conclusion, that these products when introduced into the system, either by inoculation or by the stomach, produce a species of leucocytosis such as occurs in inflammatory disorders. To place it more definitely, they stimulate the functional activity of the polynuclear white blood-corpuscles, causing an increased production of nuclein, the normal antiseptic of the blood-serum, thus increasing the resistance of the protoplasm through its agency as a protective.

This principle extends to the use of pure cultures in diphtheria, and we believe, eventually will be found to apply to a very large number of drugs which are now in common use under the head of *alteratives*.

Nearly all remedial agents modify cell-life and cell-activity, and to designate this feature in the domain of therapeutics the term "cellular-therapy" has been suggested.

Should the day ever come when we shall have the good fortune to discover such prophylactics for measles and scarlet-fever, as cow-pox from small-pox, and *toxalbumin* from diphtheria, there will doubtless be many who in their turn will try to prove that these diseases are necessary maladies, the prevention of which occasions the development of new diseases.

In my researches I not unfrequently came in contact with strong prejudices against this plan of treatment. In fact some who have tried this plan have never lived to fulfill the promise of their birth, whose life was but a short December day. Their love had grown cold before its ardor had been well kindled, and where discriminating justice would place the cause of decay at the door of the individuals, blind justice fastened it upon the system, and the result has been a want of confidence in this plan.

The interests of science require that steps should be taken to cut the ground from under such prejudices and restore confidence; and I know of no scheme better adapted to accomplish this result than one which shall provoke a vigorous prosecution of the objects of this plan.

It has outlived the experimental period of its existence and proofs attest its adaptability in the cure of disease. So potent an agency which places this treatment on such high vantage ground, which touches with such a magic hand the weak points of disease, and which provides so efficacious a remedy, should gather to its support the sympathies and co-operation of every well thinking person.

1529 So. Broad St., Philadelphia.

### EXCISION OF THE KNEE FOR THE RELIEF OF CRIPPLING FROM INFANTILE PARALYSIS.

By AP. MORGAN VANCE, M. D., Louisville, Ky.  
Surgeon to Louisville City Hospital and to the Sts. Mary and Elizabeth Hospital; Consulting Surgeon to the Masonic Widows and Orphans Home and Infirmary; Surgeon to the Methodist Orphans Home; President Louisville Academy of Medicine, etc.

In 1885 I reported a case upon which I had operated a year before for the production of synostosis at the knee, to relieve crippling from infantile paralysis. Since then I have done this operation six times, making seven excisions in all, upon five patients.

It is to report some conclusions in regard

to this class of work that I offer this short paper. All of the patients were hopelessly crippled and deformed, and ranged between seven and seventeen years of age. The two oldest of these died, aged fifteen and seventeen; one aged nine is now convalescing; two aged seven and nine are well, and wonderfully relieved. Those that died were both affected alike and, very peculiarly; both died at the end of ten days, apparently with some inflammatory complication of the heart (Endocarditis?). It is to these fatal cases that I wish particularly call attention to.

The first, æt. seventeen, for five days after a double excision the condition was good, no evidence of any complications; then the heart's action became very rapid and an extensive eruption occurred on different parts of the body resembling urticaria, the wheals being very large and universally crescentic in shape, being raised fully  $\frac{1}{2}$  inch above the surface. There was little or no fever until just before death; examination of the wounds showed no inflammatory action, and the parts around the wounds were free from the eruption. There was no pus present, but a large quantity of oily substance or fat exuded when the wounds were re-opened. No further examination was allowed.

The second case, æt. fifteen, died with exactly similar symptoms and at the same period after the operation. The strictest aseptic precautions were observed in both these cases.

*Conclusions:* 1st. The danger in these operations is in proportion to the age of the patient, and consequently the degree of fatty degeneration present; 2d. That both these deaths were due to fatty emboli or the absorption of some non-septic material into the blood, which caused the fatal heart complication; 3d. That though the younger cases may be subjected to this procedure with every hope of success both as to function of the stiffened limb and to life, the rule does not hold good in the older cases, say after ten or twelve years of age.

## THE TREATMENT OF EPISTAXIS.

By GEO. B. HOPE, M.D.

Surgeon Metropolitan Throat Hospital, New York.

It appears to be a common order with the current medical literature to introduce at frequent intervals some suggestion applicable to the treatment of nasal hemorrhage, either in the shape of medicinal formulas or by means of mechanical devices of more or less ingenuity. As frequently happens with a subject of so general a character, a large proportion of the methods proposed have but little more practical value than to cast a review of the "middle age" period, in which faith-cure disputed with the most crude and heroic forms of treatment.

The unfortunate difficulty lies in the fact that descriptive cases have no recognized standard of degree, and what one is disposed to term a severe hemorrhage, another will refer to as unimportant and easily self-limited. Were it in any way possible to establish a subjective classification, as for instance, slight, extreme and serious, a definite principle and a clearer understanding might originate, that would go far to eliminate just such erroneous conclusions as are referred to. While astringent and stimulating applications will set into motion the hemostatic action of contraction, retraction and clot organization, it is on the other hand often delayed, temporary, and consequently unreliable. The criticism to astringents as mechanical agents is general as well as specific, and is fully appreciated in the clinic room, where an economy of time is hardly less important than accuracy of instrumental technique.

It is no doubt because access to the interior of the nasal chamber is regarded as at a disadvantage that indirect and indefinite methods for the arrest of epistaxis are in such popular demand. Yet, it is a fact, that in all instances a bleeding area can be located and, by the exercise of a little care, an appropriate dressing applied

with the same certainty as upon the open surface. The ligature and direct pressure are known to afford the most certain conditions for the arrest of hemorrhage. If the former is unapplicable, the latter presents advantages peculiar to this situation that only requires the exercise of an ordinary degree of tact to apply.

The post-nasal tampon, that survives as a relic of almost fanatic faith, is never serviceable by any theory except in nasopharyngeal hemorrhage. No word of condemnation can be too strong, that would exclude the Bellocq's canula from the emergency case, and do away with the temptations to employ this useless and dangerous method.

The bony walls of the nasal chamber furnish the most satisfactory support against which local pressure, to almost any degree, can be made, so that all the conditions are eminently present that would favor a medium easily at hand and adjustable to any age or the most pressing necessity. The mechanical instruments, such as air-bags made from different substances, have the natural disadvantage of being liable to accident, and of not fitting accurately when placed in position. These and many other objections emphasize more strongly the advantages of a tampon of some material sufficiently pliable to take the shape of the nasal cavity, and capable of furnishing an equable pressure over a bleeding surface.

A strip of gauze dressing inserted bit by bit will often meet every necessity, or the cotton packing as commonly employed will answer the same indication; but personal experience and observation of the handling of others has demonstrated the fact that the results are uneven, and exhibit an element of faulty appreciation that may need only a suggestion to remedy. As viewed by the writer, the error lies in the failure to carry the tampon far enough into the naris, and the pilot gauze, or cotton, impinging against the middle turbinated, leaves the packing in the anterior chamber, and a bleeding point

posterior to it is entirely uncovered. In order to insure an even and continuous pressure the roll of absorbent cotton, in one piece, and of the size the nostril will admit, should be placed between the blades of a pair of long dressing forceps, the points corresponding to the presenting end of the cotton. By compressing the blades the cotton is securely held from tip to heel and guided through the entire length of the naris, where it is left in position on withdrawing the forceps, by steadying the presenting portion at the columna. As in all matters, even of the simplest execution, good judgment and some experience are at their full value in having a cotton pledget of sufficient size and in its proper adjustment, but certainly no other practice has given an equal satisfaction in the perfect sense of security, the ease of application and the readiness with which the support is removed after its term of service has expired. It may be wise to qualify the foregoing statements by limiting the field especially applicable to this treatment to the parts properly within the bony framework.

However uncomplicated, few misadventures occasion more disagreeable comment and more officious anxiety than a nasal hemorrhage that is not under ready control, and, in this instance, having no originality to claim and no pet theory to uphold, the writer is disposed to believe that his own results may not be too hastily included among the class of remedies that have furnished a subject for criticism in the earlier lines of these notes.

34 West 51st Street, New York.

### *PERSONAL EXPERIENCE IN THE TREATMENT OF STRANGULATED HERNIA.\**

By JOHN ASHHURST, Jr., M.D.

Looking over my records I find that I have operated on nineteen cases of strangulated hernia, and in addition have operated on two cases of irreducible omental

\* Read before the Philadelphia Academy of Surgery. Meeting May 7, 1894.

hernia, not strangulated. I have, of course, seen a large number of cases where I have succeeded in reducing the hernia by taxis. I have not kept a list of these, but the number is at least as large, if not larger, than the number of those operated on. While the number of my cases may seem small in comparison with that reported by others, this very fact confirms the view which I have always entertained—that strangulated hernia is a rare affection in Philadelphia, and rarer in this country than in the countries of the old world, England and Ireland particularly. Although the cases are few in number, yet following the old maxim "*Observationes non numerandæ sed perpendendæ sunt*"—it has seemed to me that it might be worth while to bring them before the Academy, so as to introduce the subject for discussion.

Of the nineteen operations for strangulated hernia, fourteen were for inguinal hernia, confirming what everyone knows—that inguinal is the most common form of strangulated hernia, and the one that most frequently calls for operation. One of these cases was in a child, operated on at one of my clinics and at once removed by the parents, and the further history of that case I do not know. Of the other thirteen patients, ten recovered and three died. The deaths occurred in cases where a fatal termination might have been expected, and were not due to the operation. In one case the hernia had been strangulated for five days, and the patient was a pronounced diabetic. He died of gangrene after the operation, dependent upon the diathetic condition and upon the prolonged strangulation. The second death occurred in a woman of seventy-eight years. The strangulation was very tight, and bowel was gangrenous at the time of operation. Rupture occurred at the sulcus corresponding to the line of constriction, and death took place from exhaustion in the following twenty-four hours. The third death occurred in a man of intemperate habits, who had a hernia strangulated for thirty hours and who had

been subjected to forcible taxis before admission to the hospital. So forcible had been the taxis that it had resulted in rupture of the bowel in two places. At the operation the scrotum was found enormously swollen and black from effused blood. Twelve inches of the bowel were gangrenous, and the gut presented two openings. I removed the bowel and performed a circular enterorrhaphy, but the patient died thirty-two hours afterward from cardiac failure, without evidences of peritonitis. It is evident that in none of these cases was the result in any way due to the operation.

Four times have I operated for strangulated femoral hernia, with three recoveries and one death. In the fatal case the patient died in a collapsed condition thirty-six hours after the operation. I have no particulars of the case, but there was no evidence of peritonitis.

I have had one case of strangulated umbilical hernia which terminated fatally. The patient was eighty years of age, and the strangulation had existed for a number of hours. The patient died of peritonitis, which, as we all know, is particularly apt to occur as a complication after umbilical hernia, incisions into the upper portion of the abdomen being more apt to be followed by peritonitis than incisions in the lower portion.

The youngest patient on whom I have operated was a child two years of age, with inguinal hernia. This case ended in recovery. The oldest patient was the woman eighty years old, with umbilical hernia, just referred to.

Among cases of special interest I would mention one of the inguino-crural variety, where the hernia after coming down through the inguinal canal does not pass into the scrotum, but turns up in the line of Poupart's ligament and passes outward along the groin. It is usually complicated, as it was in this case, with an undescended testicle. In this case the hernia had been down six days when I operated. I was able by taxis to reduce a portion of

the tumor, but finding that there still remained a hard mass which could not be reduced, I thought it right to open the sac and determine the exact condition. I found that the hard lump was the testicle in a gangrenous state, either from a twist in the cord, or, as seemed more probable, from the taxis which had been practised rather violently before the patient's admission to the hospital. I excised the testicle and the patient recovered.

I have operated in two cases of irreducible omental hernia. In these cases a tumor had been present in the tunica vaginalis for a long time, and while there were no symptoms of strangulation, the weight and bulk of the tumor gave great annoyance, and the patients were exposed to the risk of a portion of the gut coming down at any time. I, therefore, felt justified in operating in these cases, cutting away most of the omentum after securing its neck between two ligatures.

The points of special interest in the treatment of strangulated hernia which I would suggest for discussion are, as regards the resort to taxis, its limitations and the aids to its performance, and then as regards operative treatment, the particular mode of performing the operation, more especially as regards the direction of the deep incision, in regard to which some difference of opinion prevails, and as to the advantages and disadvantages of Gay's method as modified by Fergusson, and as to the advantages or disadvantages of Petit's plan of operating without opening the sac.

*The limitations of taxis.* I feel obliged to say that while I have reduced a good many strangulated hernias by taxis, while I think that it should be the surgeon's first thought, and while, if practised with care and skill, it is a safe method and one which will usually succeed when resorted to in time, yet I must express my belief that in the hands of an inexperienced practitioner, who sees but few cases of hernia, taxis is an unsafe procedure. Under such circumstances, I think that the patient

would sometimes be safer with the operation of herniotomy than with taxis, for herniotomy is not a very difficult operation and not very dangerous if performed with caution, whereas taxis, while seeming to be very simple, yet if employed with great persistence and force may lead to the most serious consequences. My own cases of herniotomy which resulted fatally had been mostly subjected to prolonged taxis. Taxis, therefore, I think has its limitations, and should be resorted to with great gentleness and with great caution, except in the hands of those surgeons who are sufficiently familiar with the anatomy and treatment of strangulated hernia to feel that they may use the method more freely and more systematically. It is, of course, known to the Fellows of the Academy that its founder, the late Professor S. D. Gross, maintained that very few cases of hernia required operation. He prided himself that he was able to effect reduction by taxis where others had failed; and such was undoubtedly the case. In the hands of a man like Professor Gross, taxis was a safe procedure, but in the hands of the ordinary practitioner I believe that the line of safety for the patient will often be found in herniotomy rather than in a prolongation of taxis.

It is scarcely necessary to say that when taxis is employed it should be done with gentleness and with system. The ordinary method of pushing at the hernia is very uncertain, and is not only apt to do harm but is almost sure not to do good. The rule that the last portion of bowel which has come down should be first returned, is very valuable and should always be borne in mind. Then I find what I am in the habit of speaking of to students as a kind of conjoined manipulation, a very useful mode of applying taxis, and I think the safest. The neck of the sac is grasped by the thumb and fingers of one hand, while the other hand spread out, exercises a combination of pushing and squeezing; and then by a kind of alternating movement, slightly relaxing one hand while



with the other the pressure is increased, if the hernia is reducible at all, it will go up. If no gurgling is heard in a few minutes it is not likely that taxis will succeed.

As regards the *aids to taxis*, the older surgeons resorted to many modes of assisting taxis, but in modern times surgeons have pretty much come down to two or three. Even the warm bath, which was much resorted to formerly, I think is seldom employed at present. At the Pennsylvania Hospital, our practice is to put the patient in bed, apply ice over the hernia, and give a moderate quantity of opium. When the resident physician is not able to reduce the hernia by gentle taxis, this course is followed until the surgeon has been summoned. It often happens that when the surgeon arrives he finds that the hernia has been reduced spontaneously or disappears under the slightest touch. If this fails, our rule is to administer ether and again employ taxis, and in this way the hernia can usually be reduced. Before administering ether we have an understanding with the patient that if taxis does not succeed then the operation is to be resorted to.

Another manipulation which is of great importance is to draw down the hernia a little before beginning the upward pushing movement, the object being to disengage the portion of bowel which is nipped by the source of constriction. The plan known as Seutin's I have never seen of avail, and I can hardly conceive of a case where it would be required in which it could be used successfully. This plan consists in endeavoring to introduce the finger or thumb-nail into the constricting ring, which is then stretched; this could be practised only in very thin persons, and where it could be done I think it probable that taxis would succeed without it.

With regard to *herniotomy*, the first question that will have to be decided is the extent of the external incision. Some operators make a large incision, extend-

ing over the entire length of the hernial tumor. Others endeavor to effect the operation through a very small incision, as in Gay's method. My own plan is to make the external incision three or four inches in length, and over the neck of the sac. As regards the particular method of making the incision, whether by pinching up the tissues, transfixing, and cutting outward, or by cutting down from without, I really think that there is no choice. My own practice is to employ the latter plan. Having gone through the skin and fascia, the surgeon, of course, takes up the tissues cautiously, dividing them on the director. The next question is whether or not the sac shall be opened. I agree with the English rule, that where it is justifiable to resort to taxis it is proper to endeavor to reduce the hernia without opening the sac. I have often tried to do this, but have been compelled to open the sac, as the constriction has been in its neck. In making the deep incision the tip of the left forefinger should be pressed against the source of constriction and the hernia-knife passed flatwise; this is then turned in the proper direction and the deep incision made with a gentle sawing motion, assisted by pressure of the finger below. I am satisfied that the rule of the English surgeons, to make the incision directly upward in inguinal hernia, is the correct one. While in a certain number of cases the surgeon can say this is a direct, or this is an oblique hernia, yet in other cases the relation of the parts is so confused that he cannot be absolutely certain which form of hernia he is dealing with. In the one case the internal epigastric artery will be on the inside and in the other on the outside. The safe rule, therefore, is to make the incision directly upward and in the line of the long axis of the body. In femoral hernia the deep incision should be made upward and inward. It is only in this direction that we are safe from doing injury and certain to reach the source of constriction, this being where the calciform process and Gim-

bernat's ligament join. The only danger from hemorrhage when this plan is followed is from an abnormal distribution of the obturator artery. To avoid wounding this, a good plan is to adopt Mr. Erichsen's suggestion to blunt the edge of the hernia-knife by rubbing it on the handle of another knife, or, as suggested by Dr. Wyeth, to keep the point of the knife firmly pressed against the pubis.

In umbilical hernia the safe line of incision is in the median line, and directly downward. The operation is apt to be followed by peritonitis under any circumstances; but I think that there is less danger if the incision is made in this way, on the general principle that wounds in the lower portion of the peritoneum are less likely to be followed by peritonitis than those above. In the case on which I operated the hernia was of long standing, but the strangulation was recent, from the protrusion of an additional portion of bowel. There I followed the judicious rule of not attempting to reduce the whole hernia, which would have required an extensive dissection, but simply relieved the strangulation and returned the part recently protruded.

With regard to method of dealing with the contents of the hernia, I think that all surgeons agree that if the bowel is healthy it should be returned, but that if gangrenous it should be left in the wound and a false anus formed. If a distinct sulcus is found I think that it is a good rule not to reduce the bowel, so that if it should give way the extravasation may be outside of the peritoneal cavity. As regards the omentum, I think that it is a safe rule to cut it away pretty freely. If it is perfectly healthy it is proper to return it, but if there is doubt it is safer to remove it.

With regard to the after-treatment, I am sure that the safest mode is not to make any attempt to get the bowels opened. Some surgeons are in the habit of giving a dose of oil immediately after the operation, and some even before the operation; but this seems to me to be injudici-

ous. I put the patient on the use of opium and belladonna for a few days, gradually diminishing the dose, and usually the bowels move spontaneously in five or six days.

The number of cases which I have brought before you is limited, but they represent a sufficient variety to perhaps be available for the discussion of some of the points suggested.

2000 Delancy Place, Philadelphia.

### *A CRITICISM OF THE REPORT OF THE BOARD OF MANAGERS OF THE PENNSYLVANIA HOSPITAL.*

By JAMES WOOD, M. D.

The annual report of the Pennsylvania Hospital has just appeared. In glancing over its interesting pages certain facts impressed themselves strongly upon me; facts which it would be well for us to stop a moment and contemplate.

This hospital has just rounded up a successful career of one hundred and forty-three years, and in this time has had under its care 132,097 patients. Of this large number 85,793 were cured or improved. The receipts last year amounted to \$622,950.37, and the expenditures were \$49,130.43 less than the above amount; the average cost per week for each patient was \$8.42.

The institution is divided into two departments, one for the sick and wounded, and the other designated the departments for the insane.

It is this latter section to which we desire to call especial attention, 10,562 cases have been received. The average number of males in the insane department during the past year was 207, females for same period 231, and the expenses for maintenance were \$107,631.05 and \$124,320.38 respectively.

The results of the year just closed are as follows:

	Men.	Women.	Total.
Recovered.....	31	32	63
Much improved.....	4	15	19
Improved.....	10	13	23
Stationary.....	10	14	24
Died.....	31	13	44

On examination of the food-supply in the

insane departments we are strongly convinced that of the various departments of the institution that of food is of the utmost importance. It is the experience of all observers that among that class of cases commonly known as neurasthenics, or in those whose mental alienation has been induced by nervous exhaustion or depression from ill health, the question of the proper nourishment is of the greatest import, and failure to ameliorate the condition of these poor unfortunates is, in many cases, directly due to a disregard to their mode of feeding. Of those admitted last year 180 were numbered among this class.

Let us consider this question, for the report before us presents some peculiar statistics. In the male department 53 men and 8 women were employed, and with the average daily number of patients (207) makes 268 persons to be provided for by the steward. For meat, fish, oysters, poultry, eggs, cheese, milk and macaroni, the nitrogenous and truly nutritious food-stuffs, the cost was \$19,671.09, an average of \$73 for each person; but they did not suffer for want, as many other acceptable provisions were furnished, as for instance, about 9 tons of butter, half a ton of tea and 3 tons of coffee, and with this there was 12 tons of sugar and nearly \$300 worth of ice-cream.

In the female department, with an average daily list of 231 together with 96 female attendants (327 in all), the meat, fish, eggs, milk, macaroni and poultry cost over \$29,863.16, and there were also used nearly 10 tons of butter and 2708 pounds of cheese. These women, it appears, were favored in their fondness for "the cup that cheers," since the record shows that they drank nearly a ton and a half of tea (3024 lbs.), and with that and the liberal supply of coffee—nearly 4½ tons—they caused nearly 17½ tons of sugar (34,925 lbs.) to disappear. Possibly the tea and coffee were used for medicinal purposes (?), as the cost of medicine for males was but \$620.88, that for women \$1469.72.

While not disposed to find fault with an eleemosynary institution which has accomplished such a noble work as this record shows, yet we may be permitted to criticise the liberality displayed in the supply of tea and coffee, considering the deleterious effects of their indiscriminate use among persons who are supposed to be sane.

The writer has already reported 125 cases of tea-inebriation. In the study of these cases it was found that 72 per cent. were what is generally known as nervous persons; 20 per cent. had frequent spells of faintness; 50 per cent. were troubled with gastric or intestinal indigestion with all of the attending ailments; 3 per cent. had seriously contemplated suicide; 45 per cent. were sufferers from persistent headache or capital neuralgia; 10 per cent. had spells of great depression; 20 per cent. were despondent; 50 per cent. were excited; 19 per cent. were troubled with conscious palpitation of the heart; 20 per cent. had insomnia, and when it was not complete, what little sleep they were able to get was greatly troubled by the most harrowing night-mares and dreams, so that they by far preferred to remain awake. In 12 per cent. there was noticed increasing muscular tremors. There was found among quite a number well-marked hallucinations, especially those of impending death and robbery. Such a picture as this presented to the thoughtful physician is most deplorable in every respect. These poor individuals often confess to a degree of tea-drinking which without question makes the habit an actual dyspomania.

The writer is at present studying the place of tea as a causative agent in insanity in this country. Before me lie reports from all the institutions for the insane in Ireland, and in these tea-tipping is given a most prominent place. Those in charge of these institutions do not hesitate to say that it is a direct cause. This fact, in connection with the table showing that out of the

10,562 patients 1246 were of Irish birth lends weight to my assertion.

The writer has traced many cases of insanity to the immoderate use of tea. Every intelligent physician knows that coffee interposes serious obstacles in the treatment of occult diseases associated with or dependent upon hepatic torpor. Yet, here we have men (inmates) consuming coffee at the rate of 30 lbs. a year per capita, and women (inmates) consuming 37 lbs. of coffee and 13 lbs. of tea each, or in round numbers 50 lbs. of tea and coffee annually. Even when used moderately, this would be ten times as much as sane people ought to have.

No wonder that the record of recoveries is so low as 31 and 32 among the male and female inmates, respectively.

It would seem to me that there is a great opportunity for improvement in the management of this department of our insane institutions. It is the desire to call the attention of those who have the deciding voice in the management of the insane that this criticism is made rather than to find fault with them. It is a question which demands their serious thought, and if they have the welfare of their patients at heart, a change will be inaugurated and the two offending articles cut out of the dietary, or, at least, the amount will be greatly reduced.

161 St. John's Place, Brooklyn, N. Y.

### HAY-FEVER AND THE WHITE MOUNTAINS.

By ERNEST B. SANGREE, A. M., M. D.,

Director of the Histological Laboratory of the Medical-Chirurgical College.

Frequently in the course of treating many obstinate diseased conditions, physicians desire to try the effect of a change of air and climate for their patients, and the first question from the patient usually is: "Where shall I go?" The "Eminent Practitioner" in one of the medical fairy

tales calmly directs the indigent mother to take her sick child to Carlsbad!

In suggesting the change the physician must take into consideration not only the climatic characteristics of the vicinity thought of, but also in many cases the size of his patients' pocket-book. From this it follows that the doctor should have an intimate knowledge of the place himself, in order confidently to recommend it to one who depends on his judgment. As it is physically impossible to be acquainted personally with every noted locality, we must generally depend on the knowledge of others. Unfortunately many observers write in too general terms about the regions they have visited, not giving that specific knowledge which we should have ourselves before advising others with regard to a certain section.

At this season of the year the provoking and distressing disease, hay-fever, makes itself obnoxious to its many victims, and almost equally so to the man who tries to modify or cure it. For those who can afford the outing, there is generally an annual hegira to some region which experience has found to lessen the attack or to deliver one from it entirely. One of those spots, justly celebrated, is that of the White Mountains, New Hampshire. Having just returned from a three weeks' sojourn there, I thought it advisable to write a short article, endeavoring to describe the different localities in such a manner that another physician could use the information, if he wished to direct a patient there, about as satisfactorily as if he had been over the ground himself.

Luckily I am not one of the sufferers; but while there, I met and talked with a large number of the unfortunate. I found that in almost every case the attack was either held in abeyance if the patient came there before its onset, or was greatly ameliorated or entirely removed upon his arrival. One facetious gentleman moved my sympathies by telling me that he had positively to leave before the period of banishment was properly over,

and that though he now felt happy as a lark in the possession of a set of nasal cavities of which anyone might be proud, he knew that about the time he struck Concord, N. H., on his way to Boston, he would be waked up by dreaming that the Brownies were trying to blow his head open with dynamite.

As a resort for hay-fever sufferers, then, I should consider it quite a safe place to recommend a patient to visit.

Now, with regard to the different portions of the region, and the financial aspects of the question. Many, no doubt, are deterred from going to the White Mountains through fear of fancy charges. The fact is, however, that once there, the expenses need be no greater than those of any summer resort five or fifty miles out of this city. I put myself to some trouble to make this certain. The main expense is the ticket. One can purchase a round trip ticket from Philadelphia to one of the several points up there for from eighteen to twenty-one dollars.

Suppose the ticket has been bought to Fabyan's, generally assumed to be the central point. From there one can go to the Fabyan House, just at the station, to the Mt. Pleasant House, three-fourths of a mile distant to the east, or to the White Mountain House, one mile distant to the west, in both cases by free conveyance; or take the train to the Crawford House, four miles distant in one direction, or to the Twin Mountain House, the same distance in the opposite direction.

Roughly speaking, the Fabyan, Crawford and Twin Mountain Houses charge about the same prices, say, from \$15 to \$25 for each person occupying a single room, and from \$25 to \$40 for two in a room. They are all first-class hotels and beautifully situated.

The Mt. Pleasant House charges are not so high, and those of the White Mountain House much less. The latter is an old hotel, built, I think, in 1845, but kept in a very satisfactory manner, with good food and accommodations. The location

of the house is excellent for sight seeing, as it is only seven miles from the base of Mt. Washington, and within easy walking or driving distance of a number of interesting points. The rates are \$2.50 per day, or \$10.50 per week for one person, and from \$7 to \$10 per week each for two in a room.

To one who is financially easy, I should recommend the Crawford or Twin Mountain House for about two weeks, and then a visit to Bethlehem or Maplewood. To others, not so situated, I should suggest the same length of time at the White Mountain House, and then a change to Bethlehem. This latter place is situated some two hundred feet higher than the other points described, which have an altitude of from 1600 to 1700 feet, and its situation, commanding an open and extensive view, is delightful.

Bethlehem is about twelve miles from Fabyan's and is the principal summer resort of the White Mountains. The place contains a large number of hotels and boarding houses, with prices to suit any one's pocket-book, all the way from \$6 to \$30 per week. The Sinclair House, at Bethlehem, and the Maplewood, about one mile distant, are the largest and most expensive hotels; but there are a number of others with prices more moderate and accommodations all that could be desired. Probably the best known of these is the Turner House, a hotel holding about one hundred and fifty guests. The expenses here would be about \$12 per week for single rooms, and from \$18 to \$20 for two persons in a room.

Eight miles distant from Bethlehem, in the heart of the mountain, and some two hundred feet higher, is situated the Profile House, a well kept hotel of about the same grade as the Sinclair and Maplewood and other large houses mentioned. A few hundred yards distant from it is a high peak, on the summit of which is outlined in a large projecting rock an almost perfect human profile, while at the base lies a beautiful little lake.

Besides those already enumerated there are a number of other large and medium-sized hotels situated at Franconia, Littleton, Sugar Loaf Mountain, at the Flume, North Conway and other points, and innumerable boarding houses are scattered all through the region.

It would generally be more satisfactory to write beforehand engaging rooms, so as to be certain of some place upon one's arrival; and afterwards, in a day or two, one could easily look about and make a change if desired. But even if no previous arrangements had been made, there would be no difficulty in finding a place perfectly satisfactory in any of the localities I have mentioned.

The weather while I was in the White Mountains, during the last three weeks in August, was delightful; some of the days, indeed, too cool, and a fire often agreeable in the evening, while Mt. Washington's lofty top, 6300 feet above sea-level, during the third week in August, was capped with snow.

2020 Arch St., Philadelphia.

### **SOME REMARKS CONCERNING THE USE OF COMPOUND TINCTURE OF BENZOIN.**

By J. L. GARLAND SHERRILL, M.D.

Lecturer on Surgery; Demonstrator of Anatomy and Surgery, Hospital College of Medicine; President Falls City Medical Society, etc.

Benzoin is a gum obtained by incising the tree *Styrax benzoin*, which is a native of Sumatra, Java, Siam, etc., and collecting the juice after it hardens. The *gum benzoin* itself is never used in medicine, the form usually employed being the compound tincture of benzoin, which has been largely used in bronchial catarrh by internal administration; but it is not very highly recommended for that purpose.

The chief use of this drug from a medical standpoint is in connection with urinary troubles. It has been recommended in cases of urinary calculus, because it is supposed to diminish the secretion of uric

acid. It is especially useful in chronic catarrh of the bladder, where there is an excessive deposit of phosphates—benzoic acid being the active principle of the preparation employed in this condition. Phosphates are insoluble in an alkaline menstruum, and benzoic acid stimulating the mucous membranes increases the acidity of the secretion and acts as a solvent upon the phosphatic deposits.

Benzoic acid has also been used as an antipyretic in many of the acute fevers. It is claimed by some to be as much of a specific in acute rheumatism as is salicylic acid. However, I have found that the majority of therapeutic claims for this drug, medicinally speaking, are exaggerated, and it does not come up to expectations. It is very useful in abrasions of the skin, in conditions such as chapped hands, lips, fissured nipples, etc. It is also of service in eczema where there is a tendency to cracking. The peculiar benefit to be derived from its use in such conditions, lies in the fact that after evaporation the gum forms a thin coating over the abraded surface, in this way protecting it from external influences, and also from infection.

The surgical use of compound tincture of benzoin should, I think, be more widely extended. In case of injury about the hand—whether it be slight incision in which suture would not be necessary, or whether it be excessive laceration and contusion, and especially injuries occurring in the use of machinery—I have found the application of compound tincture of benzoin to be especially useful. The manner in which it should be used is as follows: After carefully cleansing the wound, removing all foreign substances, irrigating the wound with an antiseptic solution if there is any chance or indication of infection, and thoroughly checking all hemorrhage, a layer of surgical cotton is placed around the wound. If the injury is about the hand, the fingers should, of course, be separated and kept apart by layers of cotton. After cotton is applied the compound tincture of benzoin

is poured down next the surface of the wound, saturating the cotton immediately surrounding the injured tissues. This drug, after undergoing evaporation, will form a coating with the cotton which will hermetically seal the part, thereby rendering it perfectly aseptic. Benzoin in itself is an antiseptic, although of inconsiderable strength. There will be some slight smarting upon the application of this tincture, which, however, will not seriously inconvenience the patient, and which is due entirely to the fact that it is carried by an alcoholic medium.

Especially should this agent be of benefit in cases occurring in the practice of the country physician, where patients cannot be seen and the wounds dressed as frequently as may be advisable or necessary in other forms of dressing. This dressing can be left intact from six days to a week without inconvenience to the patient; if it becomes loosened slightly, a little more of the compound tincture may be added by the patient. Frequently I write a prescription, and, after dressing the wound myself, allow the patient to saturate the cotton at intervals of a day or two after the injury has occurred. I think that in a great many cases selected and treated in this manner, better results may be obtained with less trouble to the surgeon, and less discomfort to the patient, than by any other method of treatment. I think, moreover, that this drug will bear investigation. Possibly there are other virtues in the drug with which we are not familiar, and that other studies and experimentation in its practical use may result in information and results which will be of practical benefit to the profession.

LOUISVILLE, KY.

SOME OF THE USES OF CHLORALAMID.—In the Section of Materia Medica of the American Medical Association meeting in San Francisco recently, Dr. Browning read a paper on the uses of chloralamid. He found this drug beneficial in epilepsy, beginning its use in doses of gr. xv, and in severe cases increasing to 3 i every six hours. It does not depress either the nervous or circulatory system. The article will appear shortly in the *Association Journal*.

## Correspondence.

### INFECTION AND ANTISEPSIS.

TO THE EDITOR:

SIR: Senn (Nicholas), page 364, *Principles of Surgery*, says: "An intact skin or mucous membrane furnishes absolute protection against infection with the streptococcus erysipielatis." This was held to be true of all infectious germs in a recent society meeting in this state.

The commonly accepted belief that calomel in  $\frac{1}{100}$  to  $\frac{1}{10}$  grain doses is an antiseptic to the alimentary tract was also urged in the same connection. This was held not to be proven by others.

I would be glad to have an expression from you on these subjects.

J. C. PARRISH, M. D.

Vandalia, Mo.

### REPLY.

In reply to the first portion of the above inquiry, the statement of Professor Senn is substantially correct, but owing to the fact that so few persons are to be found with an intact mucous membrane, it is not improbable that if taken as a guide the results would in many instances prove most unfortunate. We hear of persons applying the lips to a wound for the purpose of "sucking" out the poison—from snake-bite for example, and when this is done with impunity, it might be assumed that the person coming to the relief of the one who has been bitten had the advantage of an intact mucous membrane; but this makes no allowance for the solvent or antiseptic action of the salivary secretion. Were it not for this antiseptic nature of the salivary secretion, the mouth would shortly become one immense and fruitful culture-field for all forms of germs, but since it is filtered out through the cells covering the mucous membrane, and derived from the blood-serum, we must bear in mind the presence of nuclein as an important factor in maintaining the healthy condition of the secretions. It would be better, therefore, to modify the statement above in order to include this feature also as a barrier to the invasion of both germs and their products, because the resisting power of the protoplasm which composes the epithelium depends upon

the presence of nuclein. This principle applies to all mucous membranes and to the skin as well, but the latter being inured to hardships by constant exposure, its resistance to irritants is much greater than that of the mucous membranes.

Calomel in the doses mentioned is not an antiseptic to the alimentary tract, nor in fact in any dose whatever. The small dose contributes towards producing a healthy condition throughout the entire intestinal tract, because of its influence upon protoplasm at the points of absorption and elimination, but caution is necessary to avoid too much stimulation. Large doses, twenty grains or more, do apparently produce very favorable effects in the case of emergencies, not because of its direct value, but rather owing to its revulsive effect, and the patient thus medicated requires considerable time to recuperate from the effects of such heroic treatment.

If it were true, as claimed by some, that calomel, even in small doses is converted into mercuric chloride, cases of salivation would be so frequent that it would appall the public and the remedy would soon be discarded. The reason for calomel being so frequently used in preference to other mercurial salts is due to its ready solubility, and this again enables the physician to witness its effects more quickly than would be the case were insoluble salts employed. The soluble salts readily enter the circulation and are eliminated by the liver, the buccal mucous membrane, the pulmonary mucous membrane, the skin and the kidneys; but as re-absorption takes place at many of the points mentioned, especially through the salivary glands and all along the intestinal tract, considerable time elapses before the system is relieved. Its action is therefore simply that of an irritant, but when this irritation is kept within due bounds by regulation of the dose, and discontinuing the treatment from time to time, the natural physiological processes are not seriously interrupted. On the contrary, functional activity is measurably increased for a time, the secretions being improved in quality, not because of the presence of calomel in them, but rather through the influence of the calomel upon general metabolism.

This term, metabolism, however, while not especially a misnomer, is misleading, since it gives us no definite information. It is, in truth, the "bogie man," carried along by the resistless current of modern

scientific thought, and is no more a part of it than the roots and huge trees that we see in mighty rivers after a flood. These foreign bodies gather or accumulate under certain circumstances by "catching" on rocks, or forming eddies and obstruct the current by lodging on bars, but they never amount to a dam. For the good of science, such indefinite terms ought to be expurgated, but as we cannot readily dispense with them, let us have their application properly understood. In view of the recent investigations relating to cellular activity and constructive metamorphosis, it will be apparent that the function of calomel is limited to that of stimulation through its irritant action upon protoplasm, and when this action is too pronounced in the beginning or moderate dosage too long continued, it does harm. Its beneficial effect is undoubtedly due to its power to stimulate the secretion of nuclein by the polynuclear white blood-corpuscles, and as soon as this initial effect has been produced Nature proceeds to eliminate it as quickly as possible.—EDITOR.

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### Recent Medicaments.

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**PIXOL**, recommended as a cheap disinfectant, is prepared as follows: In 36 ozs. of tar is dissolved 12 ozs. of green soap; to this is added slowly a solution of caustic potash or soda—containing  $3\frac{1}{2}$  ozs. of the alkali to 36 ozs. of water. For use, 1 part of this product is added to 19 parts of water, forming a five per cent. solution of pixol; in this strength it is used for disinfecting linen, the hands, dejecta, etc.

**DIPHTHERIA ANTITOXINE SOLUTION**, as introduced by Dr. Aronson, of Berlin, is yielding almost uniformly favorable results under clinical investigations, as reported in European journals. Dr. Aronson originally, two years ago, furnished his antitoxine in the form of *blood-serum*; but this was improved by concentration, which permits of readier introduction into the blood—assuring immunity against diphtheria in children and adults by injection of from  $\frac{1}{2}$  to 1 c.cm. ( $7\frac{1}{2}$  to 15 grains) by means of a sterilized



syringe. Clinical material is accumulating through the efforts of interested authorities, and the value of the agent seems assured.

**APPLICATION:** For the positive immunity against diphtheria, a single injection, by means of a sterilized syringe of 1 c.cm. (about 1 gramme), is sufficient for children and adults. For smaller children  $\frac{1}{2}$  c.cm. ( $\frac{1}{2}$  gramme) will suffice. The injection affords instantaneous protection and is effective even in the stage of incubation.

Diphtheria Antitoxine Solution-Schering, is supplied in 2-gramme vials (about 2 c.cm.) and in 5-gramme vials (5 c.cm.).

By a new method, discovered by Dr. Aronson, an Antitoxine is also prepared in *solid form*, which is 4000 times stronger than the above solution, and will also find employment as a remedial agent.

**TUSSOL** is the name applied to a phenylglycolate, amygdalate of antipyrine, a soluble salt which has been lately introduced and specially recommended for whooping cough: it has proved superior therapeutically to antipyrine in ameliorating the symptoms and diminishing the convulsive attacks. The dose for small children a year old is 1 to  $1\frac{1}{2}$  grains two or three times a day; for older children up to 8 grains; easily dispensed in a little water, sweetened if necessary.

**TANNIGEN** is a new tannin derivative, chemically designated Acetyl-tannin, occurring as a grayish powder, odorless and tasteless; insoluble in water, but readily soluble in alcohol. The product is recommended in chronic diarrhoea, and in small doses of 15 grains and less effects reduced secretion and thickening of the fæces in the intestine; clinical trials have proved that its effect continues through to the large intestine, an advantage over tannin, which is quickly absorbed and lost.

**DERMOL** is the utility name by which bismuth chrysophanate, a new compound (chemically expressed  $\text{Bi}(\text{C}_{12}\text{H}_7\text{O}_5)_3$ ,  $\text{Bi}_2\text{O}_3$ ), is to be introduced—possibly to repeat

the commercial success of dermatol, the allied subgallate of bismuth. Dermol will have its usefulness limited to external applications, and—because of its components—is sure to secure favorable reports from those who employ it. But possibly a simple mixture of chrysophanic acid and bismuth subnitrate will duplicate any effects to be achieved with dermatol, and the “new remedy” may, therefore, find scant favor.

**BUTYROMEL**.—A French savant, anxious to connect his name with some new remedy—as is the trans-Atlantic fashion in this *fin de siècle* period of therapeutic revolution, has introduced a mixture of 2 parts sweet butter and 1 part honey, rubbed up into jelly, and calls it Butyromel, a substitute for cod-liver oil, Fancy ordering this “fat-maker” for lean and anemic children, instead of recommending liberal and frequent portions of light bread, thickly spread with fresh sweet butter, and covered with pure honey from a golden-rod pasture bee-hive. Verily, the new remedy craze is running to seed.

**EXALGINE** was introduced some four years ago, and has been investigated and reported as most liberally by authorities in Europe and America. A strange feature of its clinical record is, that opinions on its value as a therapeutic agent are equally divided, every good report being followed by disparaging records; and yet the good reports continue to appear, and from unquestioned authorities, thus renewing the interest in the product constantly. It is an analgesic of marked value, according to Moncorvo; Weismayer says it relieves neuralgia most rapidly; Joris applied it successfully in a case of chorea, after all other remedies had failed; Younger tried it with the greatest success in  $1\frac{1}{2}$  to  $2\frac{1}{4}$  grain doses in neuralgias of various kinds; also in epilepsy and in insanity. In the face of such reports exalgine cannot be overlooked, but deserves renewed application until its status is finally established beyond cavil.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### THE PHYSIOLOGICAL RÔLE OF ANTITOXINE INOCULATIONS.

There has existed from time immemorial in the minds of the laity, an idea that all diseases carry with them, in some occult manner, a cure for the respective disease, and recent investigations seem to demonstrate that this popular notion has some foundation in fact. It was this theory, no doubt, which prompted Professor Koch to advocate the hypodermatic use of tuberculin for the arrest and cure of tuberculosis, but this practice has not yet proven very satisfactory in the general treatment of the malady, however effective it may have been in cases where the disease was produced artificially. However, it does not fall within the province of this article to pass in review the details which appear to be responsible for the failure of pure cultures of the bacillus tuberculosis to render efficient aid in overcoming this most formidable malady. Perhaps it might be worth while to indicate one peculiar condition not taken into account when the use of tuberculin was shown to possess virtues in preventing the full development of the artificial disease, namely, the fact that in many in-

stances, if not virtually in all cases, the bacillus lodges within a very small area, and setting up a limited amount of inflammation, the circumscribed area is, for all practical purposes, shut off from the general circulation, and multiplication occurs with alarming rapidity. Presently this circumscribed area begins to break down and the bacilli are quickly distributed throughout the system, by which thousands of them find new homes for renewed effort, and the work of devastation goes on indefinitely. Hypodermatic injections did not succeed in interfering with these new and successive crops, and it seems doubtful if we shall ever be able to say positively that such and such a case of tuberculosis is arrested, even in the absence of the bacilli. It is possible however, that time, along with the judicious use of tuberculin or some modified product, will at least arrest a percentage of the cases, but the plan originally adopted—that of gradually increasing the dose—will have to be changed. Clinical observation will show how far this product may be used in tuberculosis to advantage, and evidence will be forthcoming that injections beyond a certain point (shown by the effect of the remedy upon the patient), not only do no good, but do irreparable injury. It is this principle which the writer wishes to develop in connection with the inoculation of pure cultures in the treatment of diphtheria, a principle, by the way, which not only threatens, but apparently gives full promise of revolutionizing both our conception of disease and methods of practice.

The physiological rôle of antitoxine inoculations in the treatment of diphtheria is liable to be overlooked by the general practitioner, and by injudicious use what now promises to prove of immense value to mankind is destined to be condemned and the advocates of the plan ridiculed. It behooves us, therefore, to take proper bearings, studying the peculiar manifestations of the disease from the bacteriological as well as the clinical standpoint.

A patient who has just recovered from an attack of diphtheria is not liable to be attacked again within a short time, say, a few weeks. It has been demonstrated experimentally that the blood-serum from a person who has had diphtheria will prevent infection; or if the person inoculated is just taking the disease, it will be favorably modified by means of the inoculation.

So far the study is particularly interesting, but here it is necessary to call a halt, until we are in a position to explain why and how this immunity and cure is brought about. If nature is so conservative that every disease is provided with its antidote, how does it happen that any deaths occur? Again, if the antidote to the disease rests in the pure cultures, would it not be a better evidence of conservatism if this special product were elaborated first? Then immunity would be "catching" instead of disease. If this antitoxine obtained from pure cultures of the disease possesses any special virtues, why not give it to every person, whether exposed to the disease or not? In this manner, universal protection could be secured, at least from all diseases known to have associated with them a pathogenic micro-organism. Some light will be thrown upon these questions by making an inquiry as to the amount requisite to produce apparent effects. In the case of tetanus, for example, but a small, an infinitesimal amount of blood-serum is required to protect mice and sheep from the disease. According to Behring, quoted by professor Welch, of Johns Hopkins University, ~~1:1000~~ part of a grain of blood-serum obtained from a horse rendered increasingly immune to tetanus for a period of two years is sufficient to protect a mouse weighing three hundred grains (5 drachms). By a simple calculation this shows that the tetanus antitoxine is effective in the proportion of 1 to 9,999,900; or in other words, that a single grain of this blood-serum would procure immunity for say, an animal like an ox or a horse, weighing nearly fifteen hundred pounds.

The foregoing figures demonstrate that the chemical basis of the antitoxine inoculations must be discarded, and as the method is, for all practical purposes, a counterpart of the treatment of diphtheria by inoculations, that also falls to the ground. It is not only highly improbable that these substances (antitoxines) enact a rôle similar to that of the digestive ferments, pepsin and pancreatin, but it requires a lively stretch of the imagination to assume the existence of anything so at variance with chemical or physiological laws. That antitoxines, under the name of "tox-albumins" do have appreciable effect in preventing the appearance of diphtheria cannot be questioned. The therapeutic virtues of this treatment, together with a report of several cases, were brought to the attention of the medical profession of this country by Dr. Myers, of this city, in a contribution to *THE AMERICAN THERAPIST* for February, 1892, and in addition thereto, an antitoxine solution prepared according to the formula of Dr. Aronson, of Germany, has been offered for sale during the past year in this country and abroad. And now comes the report of Professor Koch on the use of antitoxines in the treatment of diphtheria, and the medical journals, as well as the daily and weekly press, are teeming with the most glowing accounts of the success which has attended this plan of medication.

Having shown now the utter fallacy of the claim that these inoculations are effective by reason of any chemical or physiological properties which they might possibly embody, it remains to give a rational explanation of their physiological rôle in the human economy. Recalling the fact that blood-serum possesses antiseptic properties in its normal condition, and the additional fact that the blood-serum of persons recovered from this disease is able to confer immunity on others who have been exposed, and further, that when the disease is in its incipiency, inoculations with this peculiar tox-albumin will exert a

favorable influence upon its course, we have some substantial data at hand as a basis for further investigation. All the evidence points to the probability that the introduction of this tox-albumin into the circulation has the effect of stimulating cellular activity, and that, either by a gradual process or immediately, the cells are educated to resist the destructive effects of the disease. It is a well known fact now that the polynuclear white blood-corpuscles secrete or manufacture a powerful antiseptic substance called nuclein, which serves as a natural protection against diseases of every description. It is also admitted that through the presence of this substance in the blood, in the lymph and in the various secretions, decomposition is prevented, particularly decomposition in the secretions of all mucous surfaces. Indeed, some have gone so far in this direction as to assert that the mucus secreted by nasal mucous membrane is itself an active antiseptic. It is not unreasonable to assume in this study that when a person is attacked with diphtheria, these cells gradually acquire the ability to secrete a product which is inimical to the bacterial products taken into the circulation during the progress of the disease; hence the great value of blood-serum obtained from one of this class. By the use of pure cultures from the disease we introduce into the circulation an irritant which has the effect of stimulating the functional activity of the white blood-corpuscles to produce something which shall counteract the effect of the poison; and this substance in solution coming into contact with the cells at the point of elimination, augments the normal antiseptic properties of the secretions—moreover, it supplies an excellent illustration of the theory promulgated under the name of cellular therapy.

Heretofore, in the treatment of diphtheria, certain principles have guided the practitioner, all having substantially the same object. Believing that this disease in its inception was a local affection, ef-

forts have been made to destroy the poison at the point of origin; but this failing, internal medication has been added. Local medication has included one or more of the antiseptics, while internal remedies have been selected from among those which were supposed to influence the blood. Tincture of the chloride of iron has probably received more attention than any other, owing to its supposed influence upon the blood; but potassium chlorate is very generally employed, ostensibly for its supposed value as an active oxidizer, although its chief virtues, aside from the local contact in swallowing, must be due to its influence upon the protoplasm at the points of elimination. Being excreted largely through the renal structures and the buccal mucous membrane, we can easily understand why it has proven so useful in this disease. Notwithstanding these facts, the mortality from the disease still remained higher than it should be, and while the use of tox-albumins may lessen the death-rate and materially modify the character of the disease, we shall probably find that other medicaments will be required to assist in re-establishing cellular activity upon a normal basis, and we therefore bespeak for the nucleins a favorable consideration. These solutions alone, the writer has found most efficacious.

#### *ASYLUM ARRAIGNMENT.*

The American Medico-Psychological Association is the name adopted by the medical superintendents of insane asylums; and at their last annual meeting, held in Philadelphia, these gentlemen extended to Dr. S. WEIR MITCHELL an invitation to address the association, inviting his criticisms and suggestions upon their work. The result, as will appear, was exceedingly unfortunate, as the orator took upon himself the task of berating them for laziness, negligence and incapacity for the important trust reposed in them. As a preliminary to this scathing rebuke, he denounced the political associations con-

nected with appointments, but on the other hand pointed out that in the absence of political machinations these Boards were frequently composed of wooden materials, the best of them being made up of "very excellent, kindly, middle-aged clergymen, merchants, lawyers and the like, who do not know their business and do not know that they do not know."

Addressing himself directly to the superintendents, he pointedly asks them some pertinent questions, as follows:

"Are you so working these hospitals as to keep treatment or scientific product on the front line of medical advance? Are you really doing all that might be done without serious increase of expenditure? Where are your annual reports of scientific study of the psychology and pathology of your patients? Where are your replies to the questions as to heredity, marriage, the mental disorders of races, the influence of malarial locations, of seasons, of great elevations?

Even in your own line, most of the text-books, many of the ablest papers, are not asylum products. What is the matter? You have immense opportunities, and seriously, we ask you experts, What have you taught us of these 9000 insane whom you see or treat?

When we ask of your asylum, notes of cases, we are too often surprised at the amazing lack of complete physical study of the insane, at the failure to see obvious lessons, at the want of thorough day by day study of the secretions in the newer cases, of blood-counts, temperatures, reflexes, the eye-ground, color-fields. You may be fair general practitioners in insanity, but productive neurologists of high class, regarding disease of the mind-organs as a part of your work? No.—I think not."

It would be interesting here to learn if Dr. MITCHELL had in view any particular institution when he penned these lines. If he has seen the last annual report of the Pennsylvania Hospital, it will be apparent from the figures presented that the inmates of this institution have been most liberally treated—to tea and coffee, sugar, butter, ice cream, etc., but very little sodium chloride has been dispensed, and it is rather strange how all these provisions were "salted." The special attention of our readers is directed to the criticism of Dr. JAMES WOOD, of Brooklyn, on the Pennsylvania Hospital report, which appears in another department of this number. If it can be shown that other institutions of this character are provided for in like manner, in respect to tea and

coffee, we shall not have far to look for reasons leading to the gradual increase of insanity. The one bright ray of hope remaining at the close of the nineteenth century is the fact that Dr. MITCHELL has recently been appointed on the Board of Consultants at the new asylum for the insane in his state, located at Wernersville, and we shall watch with interest for the improvements promised in this line of work.

**THE DRUGGISTS' BOYCOTT.**—The annexed telegram shows the position taken by the pharmacists assembled in convention at Asheville, and as the probabilities point to the general adoption of the plan by retail druggists, we shall now witness a triangular controversy.

Asheville, N. C., Sept. 8.—The American Pharmaceutical Association to-day voted to boycott manufacturers who furnish physicians with their manufactured products for use in dispensing prescriptions. It is claimed by the druggists that year by year the doctors are getting more and more into the habit of filling their own prescriptions and dispensing drugs from their own offices, greatly to the detriment of the prescription business of drug stores. The resolution authorizing the boycott was the work of President Whitney, of Boston, and was adopted without a dissenting voice.

**THE DIPHTHERIA CURE AND THE BUDAPEST CONGRESS.**—The following cable-gram relating to the employment of inoculations for diphtheria will be read with special interest at this time:

"The diphtheria cure of Dr. Behring, of Berlin, a disciple of Professor Koch, has been exploited at the Budapest Medical Congress, and was indorsed by many of the delegates present. Dr. Behring's cure is called a blood-serum. By successive and increased doses of diphtheria virus injected into animals, they have gradually acquired immunity against the malady. The blood of such animals injected into other animals had the effect of conferring immunity upon the latter, or healing them if suffering from diphtheria. Of this blood Dr. Behring extracted the serum, and has injected it into human beings with wonderful results.

"Professor Heubner, of Berlin, and Roux, of Paris, indorsed the cure at the Congress. Professor Roux said that he had applied it at the Children's Hospital, in which, up to last year, 60 per cent. of the cases of diphtheria ended fatally. This year, he added, he had inoculated over 400 children with the serum and the mortality sank from 60 to 15 per cent. After an injection the malady changes almost instantly to fever, then soon disappears."

## Current Literature.

### ANTITOXINES FOR DIPHTHERIA.

The following summary of Professor Koch's antitoxine treatment for diphtheria appeared in the daily papers on August 25, 1894.

The antitoxine treatment, which is alleged to be a positive cure for diphtheria, will be introduced into New York by the Board of Health. The treatment was discovered by Professor Koch and worked out in the institute for infectious diseases at Berlin. In order to study its workings, Professor Herman M. Biggs, of the Health Department, recently paid a visit to Berlin. The result of his investigation was announced to-day in a lecture at the offices of the Health Department by Health Commissioner Cyrus Edson. In 250 cases the antitoxine treatment produced the following results under Professor Koch's prescriptions:

Where the treatment was applied within the first 24 hours, all cases were cured; where patients were inoculated on the second day of the disease, 97 per cent. recovered; when inoculated on the third day, 87 per cent. recovered; on the fourth day, 76 per cent.; on the fifth day, 57 per cent. By the treatment any person who has been exposed to the disease can be rendered immune if the symptoms have not been developed.

#### THE TREATMENT.

If cases are treated within 36 hours the mortality can be rendered practically nothing. It can be seen how wonderful the treatment is when it is recalled that the average mortality of true diphtheria is 27 per cent. The antitoxine treatment rests on the following facts:

1. It has been found that where a person contracts an infectious disease, and recovers from it, that person cannot contract the same disease again for a greater or less length of time.

2. Many infectious diseases are known to be caused by specific germs.

3. Death from an infectious disease is not caused by the germ of that disease, but by a poison (toxine) created by the germ. In diphtheria the Klebs-Loeffler bacilli of the disease create a poison, which, when absorbed from the throat by the body, causes death.

4. The reason why a person who has recovered from an infectious disease cannot "take" that disease again for a period of time, is because there has been created in the body of that person an antitoxine, some substance which neutralizes the poison of the disease, just as acid neutralizes an alkali.

5. Dr. Koch has found that if large animals, such as horses, cows, etc., be given small doses of diphtheria bacilli they will become slightly sick, giving them another dose after they get well, and then another and another there comes a time when no dose of diphtheria bacilli will make them sick. They have then developed in the blood the antitoxine substance, whatever this is, which neutralizes the poison of diphtheria.

#### PREPARING ANIMALS FOR USE.

The blood of these animals then becomes an antidote to this poison. It is drawn off in such quantities as will not injure the animals and may be used at once on a person who has just contracted the disease.

As, however, the injection of the blood of an animal into a man would create a fever, the serum of the animal's blood is separated before it is used.

This contains the antitoxine substance. If this antitoxine serum is injected into a healthy person it has no febrile effect whatever, but it neutralizes the poison of diphtheria.

It takes from four to six months to get an animal into the condition where the antitoxine substance exists in its blood. During these months the animal has to be watched and treated by skilled men.

It is the purpose of the New York Board of Health when it has this serum ready, to give it to physicians throughout the

city for use. As the work of making it is costly it must be done by a sanitary board or the poor could get none of it.

The Board will ask for an appropriation of \$30,000 to carry along the work.

#### THE EXPERIMENTS IN PHILADELPHIA:

That diphtheria and membranous croup must fall before the inoculation treatment has been demonstrated in Paris not only, but here in Philadelphia. Experiments along this line, conducted by Dr. W. W. Myers, of the Bureau of Health, have been entirely successful in their application to the cases of a woman and two children who were very ill of diphtheria. Inoculations not only saved these patients, but other members of the household who were exposed to the infection, and who were inoculated in the left arm, were rendered immune.

The substance with which these inoculations were made, and the method of its preparation, are described by Dr. Myers as follows: "The diphtheria bouillon-culture is first filtered, then evaporated to one-third its volume; it is then treated with ten times the quantity of alcohol and acetic acid, and precipitated until a clear liquid is obtained; this is dialyzed for seventy-two hours and again precipitated with alcohol and dried. The residue is a white substance, termed the diphtheria tox-albumin."

Membranous croup has likewise yielded to inoculations with this substance.

#### *SOMETHING DISCOVERED NEARER TO THE FIRST PRINCIPLE OF LIFE THAN THE CELL.*

#### THE INFINITESIMAL "PARTICLE" THAT RULES.

From Prof. E. A. SHAEFER's Address before the British Association for the Advancement of Science. (*N. Y. Sun*): —I will now invite you to consider with me one or two of the more obscure subjects in the range of physiology, subjects which are, however, creating a great,

almost an absorbing, interest at the present moment. The first of these subjects relates to the structure and function of every cell in the body. All are aware that the body of every animal and of every plant is made up of minute corpuscles which are formed of protoplasm, and which contain in every case at least one nucleus. The protoplasm and the nucleus form the living substance of the cell. Other substances may be present, but they are, in a sense, outside the nucleus and protoplasm, not incorporated with their substance. Apart from a few details relating to the structure of the nucleus, this was, until quite lately, practically all that we knew regarding the parts composing either the animal or the vegetable cell. There appears, however, to be yet another something which, although in point of size is of very insignificant dimensions, yet in point of function may perhaps be looked upon as transcending in importance, in some respects, both the protoplasm and nucleus. Not many years ago it was noticed by various observers that in certain specialized animal cells the protoplasm showed a tendency to radiate from or converge toward a particular point, and on further investigation it was found that at this point there was a minute particle. This observation, which began, as we have seen, upon specialized cells, was, after a little while, found to hold good for other and yet other cells, until, at the present time, we believe that in every cell of the animal or plant body such a particle exists.

Now, it may well be asked, why, after all, should so great importance be attached to this observation? To this it may be replied that, in the first place, it is of importance because it shows conclusively that the whole cell is not of a uniform nature, since there is this one point within the cell that exerts a special attraction upon the rest of the cell substance; and, indeed, on this account the particle has come to be termed the "attraction particle." And, in the second place, be-

cause of the apparent universality of the occurrence of such a particle. And, thirdly, because of the fact that one of the most important phenomena exhibited by the cell hinges upon the behavior of this particle; for it is found that before a cell or its nucleus divides this minute attraction particle begins by itself dividing, and is, in fact, more commonly met with double than single. Nor is it until the two particles thus produced have evolved, either from themselves or from the substance of the protoplasm or nucleus, a system of communicating fibres, the so-called achromatic spindle, that those changes in the nucleus and protoplasm take place which produce the division and multiplication of the cell. This attraction particle, which is also called the central particle or centrosome, has absorbed so great an interest that, short as is its history, many papers have already been devoted mainly to it, the latest of these being an elaborate treatise of some 300 pages by Martin Heidenhain.

I shall not here attempt to follow out the details of all these researches, but will be satisfied with putting before you the conclusion which Heidenhain has come to regarding this particle, viz., "that it is morphologically, physiologically, and chemically a structure *sui generis*; not merely a separate portion of nucleus or protoplasm, but an organ of the cell with definite functions, and having a definite existence of its own. Nevertheless, it is almost as minute an object as it is possible to conceive. In a cell which is magnified a thousand diameters the central particle appears merely the size of a pin point. Yet this almost infinitely small object exerts an extraordinary influence over the whole cell, however large (and the cell may be many thousand times its size); for it initiates and directs those processes which result in the multiplication of the cell, and indirectly, therefore, it is concerned in directing the general growth of the individual, and ultimately the propagation of the species."

### ANIMAL EXTRACTS.

C. E. Stuart, B.Sc., pointed out in a paper read before the Oxford meeting of the British Pharmaceutical Conference that healthy animal tissues being aseptic extracts which could be safely used, could be prepared if scrupulous attention were paid to cleanliness and antiseptic conditions. The knives and forceps used were to be sterilized by heat, glass and other vessels, as also the hands of the worker by washing with 5 per cent. carbolic acid.

#### THYROID EXTRACT.

The glands, best cut personally from the freshly killed sheep freed from cysts (of fatty, not purulent matter), and non-hypertrophic, were cleaned from fat, etc., sliced thinly, bruised and for every lobe 1 ccm. of glycerin and 1 ccm. of sterilized water added. After standing twenty-four hours the dull-red, thick liquid was strained off through fine calico. For hypodermic use water with 0.5 per cent. of carbolic acid was substituted for the plain water. A powder of good keeping qualities could be made by drying the expressed juice mixed with sugar of milk on glass plates.

As regarded the active principle of the thyroid gland, the author agreed with Dr. Gourlay that there were present nuclealbumen, but very little proteid, no mucin, proteose nor peptone. At the same time he doubted the possession of any peculiar virtue by the nuclealbumen. In accordance with the suggestion of Dr. G. Murray, the author made an aqueous extract of 100 lobes, previously digested for weeks in absolute alcohol; the extract evaporated under reduced pressure at 30° C. was poured into 10 vols. of absolute alcohol, the precipitated substance again extracted with water and reprecipitated. The final product weighed 0.792 gramme and experiments upon its activity were being carried out by Dr. Murray.

#### BRAIN EXTRACT.

The sliced and bruised brain of rabbits (weighing 7.3 to 11.7 grammes) was mixed with 1 ccm. of glycerin and 1 ccm.



of  $\frac{1}{2}$ -per cent. carbolic acid per gramme and after twenty-four hours' digestion strained with strong pressure through linen. The pinkish-white emulsion (sp. gr. 1.087) had been injected with good effect in neurasthenia, locomotor ataxy, and other nervous cases. It contained a little dissolved proteid and suspended protagon, lecithin, cholestrin and cerebrin. Dr. Althaus (*Lancet*, December 2, 1893) suggested that its action was due to its nature as a highly specialized pabulum of nervous matter and to the decomposition of the lecithin and protagon by the alkali of the blood yielding choline and fatty acids.

#### SPINAL-CORD EXTRACT.

The cord (average weight, 4.68 grammes), obtained by cutting away the vertebræ and removing the arachnoid, was treated as the brain extract. Dr. Althaus had termed the product "Myeline alpha."

#### SPLEEN EXTRACT.

The position of the organ was described (behind and across the stomach), its size given as  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches long and  $\frac{1}{8}$  to  $\frac{3}{8}$  inch diameter, and average weight as 0.89 gramme. Each organ was rubbed with enough glycerin and  $\frac{1}{2}$ -per cent. carbolic acid (equal parts) to make 1 fl. dr. of extract, which had been used hypodermatically (dose 10 minims) in leucocythemia, enlarged spleen, and Hodgkin's disease.

#### SUPRARENAL EXTRACT.

The average weight of the suprarenal capsule was given as 0.25 gramme, and bruised in a mortar it had a yellowish-brown granular appearance. Prepared similarly to the preceding, the extract was used (dose 10 minims) in Addison's disease.

#### PITUITARY-BODY EXTRACT.

The small pink mass at the base of the brain (average weight 0.75 gramme), free from membrane, was treated as the brain and used in acromegaly.

#### PANCREAS EXTRACT.

The pancreas of the pig, carefully freed from fat, finely divided, and treated like brain extract, furnished a milky product.

#### THYMUS EXTRACT.

The gland from a young sheep or pig treated as the brain, yielded a thin whitish extract, used in similar cases to the thyroid, but without much effect.

#### KIDNEY EXTRACT.

The finely-chopped kidney, freed from excretive matter, was treated like the brain.

#### BONE-MARROW EXTRACT.

On the hypothesis that red blood-corpuscles are chiefly developed in the red marrow of bones, an extract was prepared from the cancellous portion of the bones of the head and femur of the calf, macerating the mass for a few days in 10 vols. of glycerin, and filtering through glass.

#### ORCHITIC FLUID.

Sheep's testicles, deprived of outer membranes, macerated twenty-four hours in glycerin and boric acid (3 ccm. and 6 ccm. of a 0.5 solution to each gramme). The mixture was filtered through sterilized paper, and finally sterilized.—*Amer. Druggist and Pharm. Record*.

### NUCLEIN IN PULMONARY AFFECTIONS.

The following extract from Professor VAUGHAN's paper read before the recent annual meeting of the Illinois State Medical Association (*Journal of the American Medical Association*, June 9, 1894), should be read in connection with the editorial article, entitled *The Physiological Rôle of Inoculations with pure Cultures*, which appears in the current issue:

\* \* \* The action of nuclein in giving immunity to the pneumonia germ is not due to its direct germicidal effect. To what is its action due? This is a most important question. In my paper on "Immunity and Cure in the Infectious Diseases," read before the Pan-American Medical Congress last September, I stated that we must look for curative agents in these diseases in one or the other of the following classes: 1, non-poisonous germicide of cellular origin; 2, substances which stimulate the activity of those

organs whose function it is to protect the body against these diseases. Now, while we have in the nucleins, substances of the first class (and the action of yeast-nuclein in membranous tonsillitis and in streptococcus diphtheria must be due to its direct germicidal action), I believe that the nucleins belong also to the second class mentioned above. The phagocytic theory, developed by Metcshnikoff, teaches that the polynuclear white corpuscles are the natural defenders against bacterial invasion. This theory seemed to be disproved by the researches of Nuttall, and others, who showed that blood-serum freed from corpuscular elements has germicidal properties. However, McClintock and I have shown that the germicidal substance in blood-serum is a nuclein, and certainly the most probable source of this nuclein found in blood-serum is the polynuclear white corpuscle. Now, the administration of nuclein increases these corpuscles. This is a point which my colleague, Dr. Huber, has kindly consented to investigate, and at present I will give only some general statements of the results which he has thus far reached. These may be condensed as follows:

1. The subcutaneous injection of nuclein increases the number of white blood-corpuscles.
2. This increase occurs in both healthy and tuberculous persons.
3. With like quantities of nuclein injected, the increase varies with the person. It may be slight, and it may be three-fold.
4. This increase occurs principally in the polynuclear cells.

It is evident as a rule as soon as the third hour after treatment, and generally disappears after the forty-eighth hour.

If the nucleins shall prove of any value in the treatment of tuberculosis, it will most probably be due to the fact that they increase the polynuclear white corpuscles.

I have been using nuclein in the treatment of tuberculosis in man since May 1, 1893. At first I employed only yeast-

nuclein, but now I am using spleen-nuclein in some cases. When sufficient evidence has been obtained either to reject or recommend the treatment, the results will be communicated to the profession. I may say, however, that only in initial cases may we expect any benefit, and even in regard to these I must have more abundant material and a longer experience before I can speak with any certainty.

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## Miscellany.

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**ARSENATE OF SODA FOR LEUKEMIA**—The great value of arsenic in leukemia has been thoroughly demonstrated, but as the preparation known as Fowler's solution sometimes produces local irritation, Prof. Rummo (*L' Sem. Med.*) recommends the substitution of a solution of the arseniate of sodium, in the strength of one per cent., the initial dose amounts to five drops—under antiseptic precautions—and is gradually carried up to ten, twenty, or even 50 or 60 drops, but as soon as constitutional symptoms appear, the drug must be discontinued for the time being. It is said that under the influence of this medication the enlarged spleen and engorged glands perceptibly diminish, while the relation of the red and white blood-corpuscles approaches the normal and the general condition of the patient shows signs of improvement; from all of which it will be apparent that the arseniate of sodium enacts the rôle of an irritant, and given in comparatively small doses its gentle stimulant action is sufficient to improve the leucocytic function.

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**VOMITING OF PREGNANCY RELIEVED BY VESICATION.**—An interesting report has recently appeared in the London *Lancet* relating to the prompt and permanent effect of vesication upon vomiting of pregnancy. A single blister is applied over the fourth and fifth dorsal vertebrae and the nausea vanishes; neuralgic toothache and pru-

ritis are also relieved by the same measure and at the same time. This is certainly a most valuable observation, but unless we can give a satisfactory explanation of the physiological action of the remedy, its utility will soon be overlooked. In view of this the following is suggested: In all cases of vomiting of pregnancy, or nearly all, the difficulty begins with the liver, owing to the fact that it is compelled to do more work in the way of elimination as soon as conception takes place. Not only is the regular monthly molimen arrested, but a new life is developing, and as not infrequently happens, the hepatic gland fails to perform fully its proper work. This again interferes with the stomach digestion; the apparent cause is in the stomach, but the real cause is in most instances in the liver, and attention directed to that organ before the serious involvement of the nervous mechanism will often be followed by relief. Venesection produces a shock to the nerves supplying the liver and stomach, on the same principle that opiates promote favorable changes in extreme pain.

**RAILWAY TRAVEL OF CONSUMPTIVES.**—Among other things which the settlement of the great strike will give railway managers opportunity to attend to, says the *Journal of the Am. Med. Assn.* editorially, is the provision of proper accommodations for the segregation of consumptive railway travelers from ordinary passengers in the obvious interest of the public health. This provision will doubtless be hastened by the publication of such observations as the following from a letter to the *Pacific Medical Journal*, by Dr. Douglass W. Montgomery, written on a "trip to the Eastern States." The writer says: "In our sleeper were three consumptives returning home to die, and that alone was depressing enough, but when, on getting up in the morning, one sees a considerable amount of dry, yellow sputum on one's *vis-à-vis* neighbor's bed linen, it is neither dainty nor reassuring. Morning cogitations, usu-

ally so pleasant, are apt to turn to the uncomfortable possibility of all the bedding in the car being subjected from time to time to the same infection, and being probably imperfectly washed, or simply rinsed. Then, it is impossible to clean the upholstering and carpeting without taking them out of the car, and an infected sleeper should be dangerous as the continual vibration keeps the dust and bacteria in the air. The space is also necessarily confined. Moreover, travelers are apt to catch cold from drafts and from sleeping close to the windows, thereby rendering the mucous membranes receptive to germ implantation."

They order these things better in Europe; on some of the Continental lines special coaches are provided for consumptives, and these are constructed with particular reference to ready cleansing and disinfection at the end of every trip—which, it should be noted, are much shorter than the "runs" in this country, and the need of precautions is, therefore, and for so much, greater here than abroad.

**ALUMINUM TO DECORATE GLASS.**—Mr. Charles Margot, of Geneva, has recently discovered that aluminum can be used for engraving and decorating glass, porcelain, pottery and other articles with silica as a basis. The surface is slightly moistened, and the design traced with an aluminum pencil; the aluminum will attach itself to the surface of glass and porcelain in such a manner, says the *Chem. & Drugg.*, as to produce an even and perfect design, of metallic appearance, and so thick is the coating of the metal that when glass thus treated is held to the light the design itself appears quite opaque. The metallic design can be polished, and the effect thus obtained is very beautiful.

**FERRATIN.**—Professor Germain Sée, before the Academy of Medicine (Paris), Aug. 21st, has published a preliminary report on the therapeutic action of Ferratin. On clinical record he states, Ferratin has given very satisfactory results as iron tonic and nutrient, free from objectionable effects on digestion, etc.; he promises further trials, and a later complete report and favorable opinion.

## Book Notices.

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. By H. C. WOOD, M.D., L.L.D., JOSEPH P. REMINGTON, Ph.M., F.C.S., and SAMUEL P. SADTLER, Ph.D., F.C.S. Seventeenth edition; illustrated. Leather, 4to, pp. 1930. Philadelphia: J. B. LIPPINCOTT COMPANY, 1894. (Price \$8.00.)

The authors of this magnificent work completed their task within a few months after the issue of the U. S. P. "1890," and it has now been in the hands of the reviewer for some time, a circumstance which enables him to lay before the readers of this journal some facts relating to the value of the book which come from experience. The fact that a book has been called for in the form of a new edition annually for the period of seventeen years is a sufficient guarantee that there is a brisk demand for the class of information which it purports to supply; and it must be evident that a quarto volume of nineteen hundred and thirty pages embraces a vast amount of knowledge. Indeed, it is this vastness which has almost appalled the writer, fearing that he would be unable to do the subject justice. However, it has many excellencies, comparatively few faults, and must always be referred to as a store-house of useful information for both the medical and pharmaceutical professions.

Unfortunately, we think, no list of "contents" appears in the first portion of the book. Up to page X is taken up with prefaces to this and previous editions; then follows a page devoted to "abbreviations," "medical and pharmaceutical journals" referred to in the work, and an explanatory key to the pronunciation. A "glossary" occupies two pages, and forty pages are occupied with an "index of diseases," the references being to methods of treatment advocated in the body of the book. A cursory glance at this index shows at once the strength and weakness of the medical profession. Taking the first page, for example, we have no less

than sixty-eight remedies for amenorrhea, sixteen for anemia, although there are but six for abortion, three for alopecia, three for alcoholism, four for albuminuria, five for acne, and one solitary drug, black haw, for after pains. It would not be policy, neither would it be profitable to follow out this line of investigation, but it shows at a glance the uncertainties, the wide latitude, and sad to say, in some cases, the utter foolishness of medical treatment; and the authors are to be congratulated on bringing to the surface thus prominently the exceptionally unbalanced condition of medical lore in the last decade of the nineteenth century.

Part I, embracing 1480 pages, is devoted to a description of the "official" remedies, this term being applied to all drugs or pharmaceuticals which appear in the U. S. and British Pharmacopeias. In this section we are supplied with the scientific and popular names of the different drugs, their chemical and physiological properties are thoroughly discussed, and to this is added some interesting and instructive clinical data relating to their therapeutic properties and uses. Had nothing more been added, this section alone, owing to its comprehensiveness and general reliability, should prove a stable bond of unity between the two professions. Very properly we think, the "National Formulary," occupying fifty-eight pages, has been inserted at the close of this section.

Part II embraces "drugs and medicines not official," and, of course, includes nearly all the synthetic products bequeathed to us by the inventive German and French chemists during the past ten years; and it would be no disparagement to say that this section is of equal importance to that which embraces the authorized pharmaceutical products. That this claim is more real than imaginary will be admitted when we consider the therapeutic properties that have been advocated for a host of them. To have them dispassionately and impartially considered will be the means of leveling their position, raising

some, while lowering the pretense of others, and eventually these preparations must find a place in the therapeutic armamentarium through the continued clinical observation of competent practitioners. Without being hypercritical, the writer might take exception to some of the instructions in this section relating to therapeutics. For example, in commenting upon the subject of barium chloride, the name of Bartholow is not mentioned, although it is well known among physicians throughout both hemispheres that Professor Bartholow was recognized as the first apostle of barium chloride in America.

Dr. Wood also does scant justice to copper arsenite, intimating that it has probably failed to fulfill the first expectations, as there is little demand for it. The latter information was doubtless obtained from retail druggists, and since copper arsenite is almost exclusively dispensed by the physician at the bedside of his patient, few pharmacists are called upon to fill prescriptions for it. This is one of remedies which has found a secure footing in medical practice, and its therapeutic range is constantly widening. Both in this section and in Part I, considerable attention is given to petroleum products, but it is to be regretted that Dr. Wood has not had time or the disposition to familiarize himself with the therapeutic virtues of this valuable substance, and we therefore take the liberty of commending the subject to his favorable notice and investigation. This portion of the work is embraced in 237 double-column pages, and must prove a most valuable acquisition to our current literature on extra-pharmacopoeial products, and we take pleasure in directing the attention of authors and writers to this available fund of information which is fresh, interesting and reliable.

Part III is devoted to a record of tests, tables, metric equivalents, etc., valuable alike to the physician and druggist; and the entire work is completed by a copious index of ninety-six pages, which renders

consultation easy and greatly enhances the value of the book.

The publishers have certainly placed the professions under great obligations by the thoroughness of their work, the present edition being head and shoulders above any previous issue. The broad page is very much more satisfactory than the former narrow pages, and in addition, a larger type has been selected; the entire work is not only a credit to American book-making, but it reflects favorably upon American Pharmacy.

### PAMPHLETS RECEIVED.

From HUNTER ROBB, M. D. Reprints: An Operating Table—Practical Application of the Principles of Sterilization—Asepsis in Minor Procedures—Notes on Gynæcological Technique.

Somatose, the New Meat Nutrient. A Monograph: with Experiments. Helbing's Pharmacological Record, No. XXIX. London, July, 1894.

Non Nocere; by A. JACOBI, M. D., of New York, 1894.

Polio Encephalitis Superior Acuta: by SAMUEL WOLFE, A. M., M. D., of Philadelphia, 1894.

Prospectus of the Pittsburg College of Pharmacy, Session of 1894—95.

The Reactions of Nucleo-albumin (Erroneously Styled Mucin) with the Commonly Employed Urinary Albumin-tests. By D. D. STEWART, M. D. of Philadelphia. Reprint, 1894.

Annual Announcement and Catalogue (1894—95) of the College of Physicians and Surgeons, of Baltimore, Md.

24th Annual Announcement of the Louisville College of Pharmacy; Session of 1894—95.

35th Announcement (1894—95) of the Chicago College of Pharmacy.

Produits Fournis à la Matière Médicale par la Famille des Apocynées, par LOUIS PLANCHON, M. D. Montpellier; Imprimerie Centrale du midi (Hamelin Frères). 1894.

### MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Indianapolis, Ind., August 25, 1894.

The Twentieth Annual Meeting of the Mississippi Valley Medical Association will occur in Hot Springs, Ark., November 20, 21, 22 and 23, 1894.

The Association is now in a more prosperous condition than ever before, and no efforts will be spared to make the meeting at Hot Springs not only the largest but the most interesting and profitable ever held. Indeed, its success is already assured, many valuable papers by most excellent authors having been promised.

Hot Springs is an ideal place of meeting, and November in that charming southern health resort is the most delightful month of the year.

Socially, the visit will be enjoyable in the extreme, as the physicians and citizens with their characteristic hospitality are united and enthusiastic in their endeavors to make the sojourn of their guests pleasant.

The railroad rates will be very low and will be announced later.

You are cordially invited to be present at this meeting.

Respectfully,

FREDERICK C. WOODBURN, Secretary.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. III.

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No. 4.

## Original Articles.

### TREATMENT OF INSOMNIA.

By SAMUEL WOLFE, A.M., M.D.,  
Physician to Philadelphia Hospital; Neurologist to the  
Samaritan Hospital.

The industry of chemists has added many agents to those which a decade since were available in the treatment of this rather common symptom. Sulfonal, paraldehyde, chloralamid, urethan, trional, amylene hydrate, and a number of other bodies have either recently appeared as definite chemical compounds, or have only lately been found to have hypnotic properties. In their application to sleeplessness we must, of course, be guided by the principles which everywhere underlie medicine. We must, as far as we can, ascertain how they modify vital processes in the economy, and use them physiologically; or we must depend on the experience of observers, and use them empirically. The latter is likely to be the main principle in the majority of cases. Boast as we may of scientific medicine, honesty compels us to acknowledge that we are most often ultimately determined in the selection of a drug by the reputation it has acquired for bringing a result.

Sulfonal in doses of thirty grains if given in some hot menstruum, two to four hours before sleep is desired, has proved very satisfactory; but besides the drawback of slowness in its action, it leaves a disagreeable drowsiness, often for the whole of the following day. It seems also to be less adapted to cases where there is considerable mental perturbation, than paraldehyde. Paraldehyde should be given in drachm doses, and can be expected to

take effect within an hour. Chloralamid, in thirty grain doses, I prefer to either sulfonal or paraldehyde. It must be dissolved in spirits; brandy, one half ounce to each dose, with syrup and water, making up the draught. It will afford calm and refreshing sleep, and I have found neither notable depression nor after-drowsiness to follow. Trional has of late been much used in the Philadelphia Hospital, and seems to act well. It can be given in fifteen to twenty grain doses.

I do not think it a good plan to repeat any one of these drugs in the same night. When they fail to act within the time anticipated, supplementing with a dose of bromide or a stimulant, or even a small dose of morphine, is generally better than to give a second dose. The adjuvant will depend on the requirements of the case, as determined by the depression or exaltation of the mental and vascular functions.

It is but seldom that reliance can be placed on these agents alone. In even the simplest cases we can, with proper investigation, find conditions which need systematic treatment. Indeed, as a matter of fact, I think these drugs are not often required for more than a few nights, if we properly recognize the other indications.

Where there is a well developed neurasthenia, they can do no good beyond giving the patient a start in the right direction.

Sleep has such close relations to the vascular system that it is well to begin treatment by an investigation of the condition of the heart. Where inefficiency in power in this organ exists, we may conceive that a brain which is kept on a short allowance of blood during the period when the head is erect, will from very

conservatism, seize the advantage of the horizontal posture for flushing its capillaries. Bad as insomnia is, it is probably less significant than constant cerebral anemia. But if digitalis, sparteine, stropanthus, belladonna, or trinitrin be administered, according to the indications, during the waking hours, then the vaso-motor process which develops the requisite vascular conditions of sleep will often result as the natural consequence of that normal power which enables an organ to regulate its blood supply to its needs.

The gastro-intestinal system holds equally close, probably even closer relations to vaso-motor processes. In its vessels a very large portion of the normal blood-supply can be stored in such a way as to be practically diverted from the general circulation. When, through irritated, engorged, or inflamed conditions here, this function is disordered, we can well see how again the cerebral conditions may be unfavorably affected, and how sleeplessness may ensue.

Insomnia should always receive more attention than that which ends with the simple administration of a hypnotic. Its existence calls for a full investigation of the various functions. If the cerebral cell is suffering in its nutrition, its restoration must come about by modifying the amount or kind of its activity; or by regulating the supply or composition of the blood on which it feeds. To accomplish this, with the more important discovery of the actual state, requires often the possession of knowledge and the application of skill which is not transcended anywhere in the field of medicine.

1624 Diamond St., Philadelphia.

DR. OLIVER WENDELL HOLMES wrote forty-two works on medical subjects and lived to see many of his early ideas of medicine, which at first met with condemnation, accepted by the leading physicians of the world. Speaking of this recently, Dr. Holmes recalled the storm of indignation which was raised by his famous epigram that "if all the medicine in the world were thrown into the sea it would be all the better for mankind and all the worse for the fishes." And then he laughed quietly as he remarked that now most of the profession practically agreed with him.

## NOTES ON THE NEW TREATMENT OF DIPHTHERIA.

By J. LINDSAY PORTEOUS, M.D., F.R.C.S., Ed.,  
Physician to Saint Joseph's Hospital, Yonkers, N. Y.

Readers of the *AMERICAN THERAPIST* and others who have an opportunity of closely watching medical progress must have noticed that we are on the threshold of a mighty revolution in the theory and practice of medicine. The vast strides which have been made within the last two or three years in the knowledge of the causes and treatment of various diseases plainly show that the patient years of study of Pasteur, Lister, Koch and others are bearing fruit; that Brown-Sequard's theories were not mere vaporings, but pointed in many ways in the right direction; and that the successful treatment of myxedema is an established fact. The successful treatment also of lupus, psoriasis, and certain forms of eczema, and my own case of incipient phthisis (previously reported in the *AMERICAN THERAPIST*), by thyroid extract, are only pioneers of what we may expect.

The enormous increase of diphtheria in various parts of Europe, and the hitherto uncertain methods of combating the disease, gave a stimulus to the German scientists to discover, if possible, a cure for this deadly malady. In London last year, there were no fewer than 3265 deaths from this disease alone, and during the thirteen weeks preceding August 11th, of this year there were 598 deaths from it. In the Emperor and Empress Friedrich's Hospital, in Berlin, during the three years, 1891, '92, '93, one thousand and eighty cases of diphtheria were treated under the superintendence of Professor Baginsky. Of these, four hundred and twenty-one, or 38.7 per cent. died, the mortality in the respective years being 32.5 per cent. in 1891, 35 per cent. in 1892 and 41.7 per cent. in 1893. From the commencement of the present year up to March 14th, eighty-six cases have been treated, with

thirty-eight deaths, or a mortality of 41.8 per cent. This death-rate is appalling, but now there seems to be a prospect of reducing it. Thanks to Behring, Kossel, Aronson and others, a means has been discovered and used whereby this end can be accomplished. The substance used is an antitoxine or antidote, prepared from diphtheria bacillus, as has been written about frequently during the past year.

In the *Deutsch. med. Woch.*, for April 27, 1893, Behring and Kossel reported a series of thirty cases treated by inoculating with attenuated cultures of the specific bacillus, or by injecting a suitable quantity of the serum of an animal which had suffered from the disease in some form which had conferred upon it immunity. Of these cases, twenty-four, or eighty per cent. recovered. This was considered a great improvement upon the old treatment. One year later, in the *Deutsch. med. Woch.* for April 15th, 1894, Ehrlich, Kossel and Wassermann related their experiences in continuation of the researches of Behring in Professor Koch's Institute. In these cases the serum was obtained from goats artificially rendered immune.

Does this not remind us of Lady Montague's inoculation for smallpox followed by Jenner's vaccination?

The mode of rendering the goats immune was by giving them increasing doses of dead diphtherial cultures. They adopted the method of ascertaining the amount of antitoxine present by means of neutralization, making use of a virus equivalent to 3 in 1000 grams body-weight. The immunity-producing unit is such that 0.1 ccm. suffices to neutralize 0.8 of the virus. Two hundred and twenty unselected cases in children were treated with the curative serum, and it is a fact worth knowing, the treatment was never known to be harmful. At first, a single injection, equivalent to 130 to 200 immunity-units was used, but later, the dose was repeated in severe cases. Sixty-seven of the two hundred and twenty were tracheotomized, the mortality being 44.9 per cent. Among

the remaining one hundred and fifty-three, the mortality was only 23.6 per cent. In six, treated on the first day, there were no deaths; in sixty-six treated on the second day, the mortality was only three per cent; but in twenty-three, treated on the fifth day, the percentage of deaths was 56.5.

The physicians state that one-half the fatal cases when first seen were so ill that recovery was almost impossible, and that the other half might have been saved, if sufficient serum had been at hand to give several doses. The effect noticed in some of the children was, that there was improvement in the first two days, but eventually they became slowly worse and ten to fourteen days later died from nephritis and cardiac failure. Large doses affected the temperature and pulse critically in character. In conclusion, they advise, 1) that the serum should be used as soon as possible; 2) in slight cases two hundred units, but in severe, as well as in tracheotomized cases, four hundred units should be given; and 3) the treatment should be repeated on the same or the following day, according to the severity of the symptoms. The total given may be five hundred to one thousand or fifteen hundred units. Of course, the authors are only responsible for the serum used by them, or prepared under their direction. So much for the experience of these three physicians.

Many other physicians have given their experience of this treatment, all more or less successful, but to Dr. O. Katz is due the credit of having first shown that the antitoxine is a prophylactic in this disease. He reports having inoculated seventy-two children who had been exposed to a virulent form of diphtheria. Out of these only eight were attacked, and those so lightly as to be free from any evil consequences. This is valuable information, and if positively confirmed, will prove of great service when the disease has entered a boarding school, asylum or other such institution.

It has not, so far as I know, been de-



terminated how long immunity persists after inoculation. This will, however, I have no doubt, soon be ascertained.

The manner of injecting the antitoxine is the same as that employed in using the animal extracts. First, wash the part selected (the tissues of the back or buttocks) with water; then with a five per cent. solution of carbolic acid; then with alcohol, treating the hand in the same manner. Then, after sterilizing, insert the needle of a De Bove or other suitable syringe beneath the skin, pressing the piston-rod as you withdraw the needle. If this gives unnecessary pain, quickly plunge the needle deep into the tissues, and inject as you withdraw it.

I do not think the actual dose from which the most good can be obtained has been determined, but the following scale may be adopted: For immunity, 1 ccm. for a child over three years of age, and half this amount for a child under that age. For cure, when the disease has been diagnosed during the first two or three days, for a child under two years, 2 to 3 ccm.; from two to ten years, 5 ccm.; over ten years, 10 ccm.; after the third day, in severe cases, twice as much as the quantities above mentioned. If more serious symptoms should ensue after the injection, the dose should be repeated in twelve hours. Usually, there is less edema and a fall in temperature in from twelve to twenty-four hours, and a most marked improvement in forty-eight hours.

While recently in London, I made many inquiries about this method of treatment and everyone questioned was quite enthusiastic over it. The great trouble was the difficulty in obtaining the antitoxine, as it takes months to prepare the horse (the animal now used), so that the serum possessed the power of immunization. I endeavored to obtain some from those authorized to sell Aronson's antitoxine, but they could not supply me, although they promised to do so as soon as possible.

There is no doubt but that a discovery

has been made which must prove of great benefit to humanity. This, the most pronounced pessimist must admit, if he has studied the bearings of the questions relating to the disease. When we consider that there will be no spraying, no swabbing, no painting, no disagreeable medicine, no intubation, no tracheotomy, how many of the terrors of diphtheria will be removed! But the fact of having this instrument of cure available is not all that is required to accomplish this blissful end. We must be able to diagnose quickly and accurately the disease, and follow the advice given by Professor Loeffler (the discoverer of the diphtheria bacillus), at the recent meeting at Budapest, of the International Hygienic Congress, to have a systematic bacteriological examination of all diphtheria cases, as it was only by this means that true diphtheria could be distinguished from croup and other kindred throat affections. He also suggested that in every town or district an officer qualified to examine specimens should be appointed, and until this is done we cannot expect the banishment of the disease. He even goes further; he says no children who have recently had the disease, and no children residing in the same house, or having been in contact with affected persons, should be admitted to the public school or family circle till a bacteriological examination pronounces them free from bacilli.

Professor Loeffler said that the diphtheria bacillus could be present in the nose or larynx of healthy persons without producing the symptoms of the disease. These only appeared when the disease had secured a footing. After cure, as a rule, the bacillus disappeared with the local symptoms, or shortly thereafter, but sometimes remained for weeks, even for months, alive and virulent in the throat or larynx. It was also shown that in organic matter protected from light, the bacillus could survive outside the human body for a number of months. Dark, damp and dirty dwellings, therefore,

avored the preservation of the germ and spread the disease. Loeffler and his committee recommended that dwellings should be kept clean and dry, and supplied with plenty of light and air. Care should be taken to cleanse the mouth and nose, the throat to be gargled with a weak solution of common salt and carbonate of soda. The teeth should be frequently cleaned and all bad teeth removed; enlarged tonsils should also be removed. It is recommended that all suspected cases, not bacteriologically examined, should be reported to the board of health, and that no patient should be allowed to enter school or the family circle till a bacteriological examination pronounces them free from the bacilli. Let us hope then, gentlemen, that, ere long, we shall be able to banish when imminent this hitherto most deadly disease.

I do not advocate that we should become enthusiastic over half-tried remedies, such as was the case with many when tuberculin was unwillingly given to the public by Koch; but the thorough physician should keep his eyes and ears open, and use the new remedies after the experimental physiologist has proved that they are for the good of mankind. Nor do I consider anyone qualified to undertake successfully the operation and after-guidance of these cases. As Pope has written,

"Be not the first by whom the new is tried,  
Nor yet the last to cast the old aside."

Such are the few hastily gotten together notes, not gleaned from personal experience, but from the most reliable sources. At a future date, I hope to be able to give the results of practical experience in the new treatment of diphtheria.

83 Warburton Ave., Yonkers, N. Y.

PILOCARPINE, the alkaloid of *Jaborandi*, has become very scarce, owing to insufficient supplies of the leaves. Two years ago the muriate of pilocarpine was sold wholesale at five dollars an ounce; now \$48 an ounce will buy only limited quantities. For fifteen-grain vials two dollars is a cheap price at present.

## SCLERODERMA—WITH REPORT OF CASES.

Reported to the Louisville Clinical Society.

By I. N. BLOOM, M.D.

This patient, Mrs. W., was referred to me a short time ago. She is fifty-two years of age, and has always enjoyed exceptionally good health. Her appetite is good, and she still feels perfectly well. There has been for some time past a slight impairment in hearing. But the point to which I desire to call attention particularly has no connection with her hearing faculties.

Six years ago she first noticed several small tumors on the left side of her face and brow, such as you see four or five present now. These growths or tumors have been entirely unilateral, never affecting the opposite side of the face. The history is, that these tumors do not ulcerate, but they vary in size from a large American pea to a large hazel-nut. They are not painful, and after a time disappear. In disappearing they leave no scar, but are followed by atrophy of the subcutaneous cellular and fatty tissue.

One particular feature is that the skin is not bound down at all, but is just as loose as if the cellular layers were present. On the affected side the patient looks to be sixty-five or seventy years old; on the other side she does not look her age. Another singular feature is that there appears to be a slight enlargement of the nasal process of the superior maxillary bone on the affected side. The point I wish to emphasize is, that there is utter absence of fatty and cellular tissue. Tactile sensibility is preserved. She says that the "change of life" commenced about a year ago. She formerly suffered intensely from headache, but this symptom is no longer present.

Some of you will probably remember that I exhibited to this society about three years ago a case of scleroderma which was then localized on the hand and arm. The patient was a lady about forty years of age. I saw her quite frequently for

perhaps two years, then the case was lost sight of. In that case the parchment-like appearance of the skin was very marked; furthermore, in the circumscribed spots the skin was firmly adherent. This is true in most cases of scleroderma.

The disease in the case before us has attacked the most usual site; it involves the area supplied by the fifth pair of nerves. The first stage is usually characterized by infiltration; small reddish-blue tumors or elevations appear. In the latter stage, the stage of absorption, there is apparently atrophy of the deeper skin, and after this comes the stage in which the skin becomes adherent, the skin becoming bound down to the covering of the bone. Whether this case will ultimately become so, of course, I do not know. It is singularly loose and thin at present, especially over the zygomatic arch.

I am not going into the discussion of scleroderma and morphea, which most dermatologists associate with the same disease. In this case when the wrinkles are smoothed out, the skin made tense, the epidermis looks normal and does not show any scar tissue; in other words, the change is not of the epidermal, but of the deeper structures.

Beneficial changes have occurred since she has been under my care—during the last three or four weeks, but I cannot say that they are the result of treatment. The spots do not seem to be as greatly enlarged as they were. One of the patches has grown considerably smaller.

As to remedial agents, almost everything has been recommended, but I believe nothing of real benefit has ever been discovered, although it is not necessarily a fatal disease. I have gotten the best results from the administration of arsenic, pushing the remedy to its full physiological effect. In this case I am giving twelve to fourteen drops of Fowler's solution three times a day. In the other case referred to I have used large doses of Fowler's solution, but accomplished absolutely nothing. In the case before us,

I take it, the diminution of the infiltration or the inflammatory process is entirely due to natural absorption and not to any remedy that has been administered, and I happened to see the patient just at the time when the infiltration was undergoing absorption.

The prognosis as to cure is unfavorable; so far as life is concerned, prognosis good.

Louisville, Ky.

### DIET FOR HEALTH.

By JOHN AULDE, M.D.

The subject of diet for health is one which has recently attracted considerable attention, principally through the influence which has been brought to bear upon sickness and disease in its various manifestations by proper regulation of the food-supply. Still, the scientific aspect of nutrition has not yet penetrated to any considerable depth the medical fabric proper, and the laity only begin to realize that a limited number of physicians are conversant with the needs of the human organism in respect to food. While, in this country, food of every description is to be found in abundance, it seems as though it is less "available," in political parlance, than medicine and the thousand-and-one proprietary remedies, which are daily brought to our attention. Should that industrious French chemist, Berthelot, finally succeed in preparing food by synthesis, the farmers of this country, truckers, dairy-men, stock-raisers and planters as well as importers of tea and coffee would be compelled to look up some new method of obtaining a livelihood, since the rage for novelties would seriously interfere with the legitimate business known as commerce. However, as this utopian scheme is but a tenant of the imagination, arguments *pro* and *con* may be omitted, and attention directed to the facts as we find them in the different stations in life.

The question will be asked at the outset, What is to be understood by the ex-

pression, diet for health? In answering this, we must bear in mind the wide latitude which is possible to be embraced in the inquiry. A person may live on a diet which barely sustains life and still maintain apparent health. Again, a man may be so constituted physically and mentally (eccentric?) that every portion of food must be weighed, and only those products selected which the physiological chemist says ought to be taken into the system. We may pass these two extremes, and for the present we may also omit a recapitulation of certain scientific data in regard to nitrogenous foods and carbohydrates, the main object of the present article being to embody some practical suggestions to that large percentage of humanity who aim to get along without the assistance of medicines. While the employment of medicines is not condemned, the fact should be emphasized that medicines, as a rule, are of secondary importance; when used, however, they ought to be administered with precision as to the effects which they are supposed to produce, and when so employed, not harm, but good will come.

As a skeleton outline of the principles to be observed in diet for health, the following points are offered for consideration:

I. Time for meals: As far as possible, meals should be taken at regular hours, and too long a period should not elapse between any two meals.

II. Time for eating: Much depends upon the proper mastication of the food, and as the salivary secretion is an important aid to stomach digestion, due allowance must be made.

III. Character of food: The character of food embraces a wide range, but for convenience—in this study, it will be divided into, a) solid, semi-solid, and liquid, and b) nitrogenous and carbohydrate.

IV. Fluids with meals: Since the digestive processes are hastened by hydration, fluids are necessary, but they must be used with discretion.

V. Alcoholic and malt liquors: On general principles the use of alcoholic or malt liquors as beverages must be condemned, although under certain restrictions no immediate harm arises from their occasional use when taken with meals.

VI. Late dinners: By this expression is meant six o'clock dinners, and is not intended to apply to midnight eating or banquets which extend over a period of several hours.

Taking up in their order the foregoing points, it will be an easy and natural method to develop the practical bearings.

a.—That meals should be taken with regularity, no one, it seems, will be disposed to question, since it must be apparent to the most unsophisticated that Nature favors certain habits, and one of these is the production of digestive ferments. A person in health accustomed to his regular meals will, when the proper time has passed, fail to experience his natural zest for food. Sometimes the appetite will be wanting altogether, while at other times he eats ravenously without regard to either the taste or the character of the food set before him. These peculiarities are often more noticeable in those who neglect to eat for long periods, and the writer entertains no doubt whatever that many persons thus lay the foundation for future illness by a disregard of this caution. When a man begins to explain that he feels better without a lunch in the middle of the day because he has such a good appetite for his six-o'clock dinner, we may calculate with a considerable degree of certainty that he will shortly be in the hands of the physician—provided he should be so fortunate as not to die suddenly from some supposed occult cerebral trouble. So recent as the morning of this writing a report comes from a neighboring city that a man died in the ambulance on his way to the hospital, and that the coroner's jury found that death resulted from congestion of the brain brought on by eating too much ham and beans.

b.—Time for eating is a most important

factor in securing and maintaining a healthy condition of the digestion. When food is properly masticated it is acted upon by the salivary secretion, which is not only an active solvent but is also an efficient digestant, acting energetically upon starchy food-stuffs. In fact, the latter, when properly manipulated—without liquids—are almost completely digested when they enter the stomach; and besides, the bolus is alkaline, and it thus becomes an important aid to stomach digestion, its alkalinity being a valuable stimulant to the digestive function proper. But as the mastication of food requires time, there is a temptation to take liquids of various kinds, and although a small quantity may do no serious injury, the habit gains on a person, and after a while he begins to feel that his digestive capacity is limited. Let all such act on the above hint, masticate the starchy food-stuffs thoroughly, take liquids only towards the close of the meal, and they will soon believe that they are feeling young while getting old.

The advantage of taking liquids towards the close of the meal are various, but the most important one is due to the fact that hydration is necessary to digestion. In the stomach only albuminoids are digested; fats and carbohydrates are digested in the small intestine. Actual peptic digestion does not begin in the stomach for some time after the ingestion of food, estimated at from fifteen minutes to three-fourths of an hour, and under normal conditions, the contents of the stomach remaining at the end of two, two and a half or three hours, are gradually poured into the small intestine, there to come into contact with the bile and pancreatic juice. Thus, when a man eats in moderation, masticates his food properly and takes a liberal supply of liquids towards the end of his meal, he will feel no discomfort from the food taken; but about midway between meals a sensation of thirst will occur, the thirst being brought about because of the hydration required for the

intestinal digestion. This routine is simply the result of certain chemical and physiological processes that are taking place in the human economy, and when the supply of food is not regulated as to time, the derangement of function may be readily traced.

c.—Upon the character of the food ingested depends the activity of digestion. Liquids and semi-solids, as a rule, being more easily manipulated than solids, are more quickly absorbed. The time required for the digestion of solid food-stuffs also depends upon various factors, particularly with reference to the method of cooking; but as this question is foreign to the purpose of this article, it will not be considered. Whatever the kind or character of food, it should be eaten slowly, and the starchy foods thoroughly masticated. Meats free from fibrinous shreds and properly cooked, may be eaten with but little mastication, as digestion here takes place in the stomach, and with a moderate supply of water, which is the best diluent, digestion proceeds uninterruptedly.

As to the advisability of nitrogenous or carbohydrate foods, there is much to be said on both sides; and since the organism requires both, it seems the part of wisdom to make a suitable division. Those who live principally upon bread, potatoes, and the like, do not appear to possess the same tenacity and persistence which is characteristic of those who depend principally upon meats and other nitrogenous foods. Of one thing the writer is thoroughly satisfied, namely, that the most efficient diet for work, either mental or physical, consists of a fair proportion of both bread and meat. With this as the main dietary, a person will get tired, but with a little rest or sleep, he is just as well able to begin another day's work as in the morning after a good night's rest. On the other hand, many who subsist largely upon potatoes and other carbohydrates, appear to be constitutionally tired, and it is probably for this reason that the sale of

proprietary medicines in this country has attained such enormous proportions. Most of them contain some purgative principle which, once begun, must be continued; and these potatoe-eaters and water-drinkers are constantly complaining of constipation. Intestinal indigestion is, therefore, far more common in this country than derangement of the stomach.

*d.*—While fluids should always form a portion of each meal, the introduction and liberal use of ice-water has developed in America a vast multitude of ice-water dyspeptics, and yet it would be difficult to convince one of these that this plan of eating and drinking is harmful to him, although it might be so to others. In dealing with such, therefore, I have found it advisable to interdict the use of fluids, except a very little from time to time during the meal, without assigning any special reason. People who eat bread and potatoes and drink water with meals get stout, but they lack staying powers, and can neither run nor walk at a rapid rate for any considerable distance. When water, tea or coffee is used to help swallow the food, it enters the stomach in a condition favorable to start fermentation, and it is a fact that those who follow this practice frequently suffer from dilatation of the stomach, and with this there is associated paralysis of the circular fibres of the muscular coat of the intestine. This again leads to distention of the abdomen with more or less involvement of the liver, and as a sequel we have complaints of alternate diarrhea and constipation.

*e.*—Like tea and coffee, alcoholic and malt liquors delay rather than hasten the processes of digestion, and especially is this true when the quantity is sufficient to arrest the peptic ferment; in this case, the ferment is permanently destroyed, and the work of secreting it anew must be repeated, all of which takes time and permits chemical and physiological changes to take place. In the case of those given to the regular ingestion of wines, beer or

whiskey with meals, we have the almost universal complaint of rheumatic affections, although this is nothing more than an indication or effect of auto-intoxication. A few doses of the salicylates will be sufficient to clear this up for the time being; or a dose of purgative medicine will answer the same purpose; but neither removes the cause, and as a consequence this form of medication must be repeated again and again. Moreover, alcohol deranges the liver; and thus we see how intimately related are alcoholism and disorders of digestion.

*f.*—Late dinners, or six o'clock dinners, are condemned by some and approved by others; but to those familiar with the physiological needs of the body there can be no question. Who ever suggested that it would be policy to keep the baby at the breast awake after nursing in order that digestion might be completed? Indeed, rest is the most appropriate thing after meals, while work, either mental or physical, cannot be successfully performed when digestion is active. It is far better, therefore, for those who pretend to work, that a light lunch be taken about the middle of the day, with the principal meal at the close. The evening then can be spent in suitable recreation or light reading, so that a person retires in the most favorable condition to secure repose, and his slumbers will not likely be disturbed by harrowing dreams or recurring nightmares. Intestinal indigestion is the principal cause of insomnia, but this may be avoided by a proper selection of food-stuffs for the day, and more especially the evening meal, when the proper digestive work will favor rather than interfere with normal sleep.

In the foregoing remarks I have touched but slightly upon the scientific aspects of digestion, but they are in line with the suggestions usually made to patients suffering from inappropriate diet, and from extended observation and experience I am fully satisfied of their practical value. Moreover, I feel confident that were these

suggestions placed in the hands of the more intelligent people, we should have less demand for remedies for indigestion and constipation, with their concomitants, insanity and melancholia. The present trend on the part of the laity is toward medicine, while I firmly believe the greatest improvement would ensue if the advance were in the other direction—away from medicine. The present generation has become all too familiar with medicine, and should be educated for the benefit of health more in the direction of avoiding it as far as possible, certainly against the practice which now obtains so generally, that of self-medication.

1411 Walnut Street, Philadelphia.

## Selections.

### *THE STRUCTURE OF BLOOD AND ITS RELATION TO PRACTICAL MEDICINE* \*.

By J. H. WYTHE, M.D., LL.D.

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Physicians have always realized the importance of the study of blood. The ancient Hebrews regarded it as the life of the body, or the meeting point of body and soul. The humoral pathology, first elaborated by Hippocrates, and which was the prevailing doctrine of all medical theorists for hundreds of years, gave great importance to the evacuation of the blood by the lancet, the scarificator, and the cupping glasses. So universal was this practice that it attracted the censure and witticism of the literary world, culminating in the immortal "Doctor Sangrado" of Le Sage. Many who are still living can remember the careful directions given respecting blood-letting—how it should be drawn by a full stream into a warm deep

basin, so that it may be set aside to coagulate gradually. Then the appearance of the clot, and of the buffy coat, had much to do with the judgment of the physician. A soft and uniform clot indicates deficiency of fibrin, as in typhoid fever, etc. A uniformly great contraction shows a predominance of fibrin over red corpuscles, as in chlorosis. Blood highly buffed and cupped occurs in acute rheumatism and other severe inflammations. These, and similar aphorisms, were based upon observation of the general structure of the blood as seen by the naked eye. May it not be that the modern practitioner has gone too far in the opposite extreme?

With the invention of the microscope, the study of the blood has been greatly promoted. No part of the animal organism has been more frequently examined, and yet its true structure is but partially known. It may be said of the blood more than of any other histologic structure that there is no end to investigation and research. It has been examined under a variety of physiologic and pathologic circumstances and exposed to different physical and chemic conditions. It has been boiled and roasted and fried, and cooked in all sorts of menstrea, in the hope of torturing Nature to reveal her secrets, and it has also been treated kindly and delicately with the same hope. Under such circumstances, the opinions of observers have naturally been different, and sometimes contradictory. Many of these discrepancies were due to the imperfection of early microscopes, and the almost universal habit of using too low magnifying powers. The optical improvements of the past few years have doubled our ability to penetrate the arcana of Nature. The numerical aperture, or standard measure of excellence, of the best objectives of eight or ten years ago was but 0.75 or 0.80 per cent., compared with 1.33, or 1.50 of our present lenses, or as a circle of three-fourths of an inch diameter compares with one of an inch and a half. With such improved power of research, nothing but lack of in-

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dustry or care can prevent more accurate knowledge of minute structures. The delicacy of adjustment in our best objectives has also rendered more perfect mechanical appliances and optical accessories a real necessity. In addition to the widest possible numerical aperture in the objectives, the microscope of the future will have a wide-angled achromatic condenser with coarse and fine adjustments equal to those required for the objective itself, and with an iris-diaphragm for regulating the illuminating cone of light. No really critical work can be done without such provision. The images given with high powers and such appliances are so different from those of low powers in inferior instruments as hardly to be recognized as the same structures. It is certainly quite reckless to give testimony affecting human life based on observations made with inferior means.

The brilliant discoveries in bacteriology during the last few years seem to have eclipsed all purely histologic investigation, yet within a recent period microscopic examination of blood is assuming the importance which it deserves, and although it remains to a large extent an unexplored territory, enough is known to justify its careful study by the practical physician as a guide both to diagnosis and treatment. To the young graduate, desirous of distinction, no more inviting field is open in all the realm of medical science. To tabulate the microscopic analyses of blood in different ages and diseases, with a comparison of clinical symptoms, will require years of labor, but will be a priceless boon to the medical profession.

When we speak or read of blood, it is natural to think of it as the red stream which courses through the arteries and veins, yet in strict propriety, the fluid plasma, continuous with the lymph which bathes every tissue and organ of the body, is the real blood, conveying life to every cell and fiber, while the white and red corpuscles are incidental accompani-

ments, conveyed by the fluid blood for special purposes. Much has yet to be learned respecting the chemical and vital properties of the plasma, yet there can be little doubt that much of the immunity against zymotic diseases is due to these properties. Dr. Prudden has shown that serum and non-inflammatory exudations in the living human being possess a marked germicidal power, and this has been confirmed by several European observers.

This serum is not only a solvent for bacteria, but for other structures. In August, 1891, I published in the *Pacific Medical Journal* some observations of the blood in a case of lymphadenoma, in which the red corpuscles were seen to dissolve in their own plasma, but after a month's treatment with iodide of iron and manganese, the corpuscles resisted dissolution. Sterling tells us in his "Histology" that the red corpuscles of a rabbit or guinea-pig are completely dissolved in a few minutes in the blood serum of a dog. The corpuscles of a frog or pigeon dissolve more slowly and their nuclei remain. The dog's serum loses this property after being heated to 50 or 60 degrees for half an hour.

In pathologic conditions, as relapsing fever, anthrax, tuberculosis, etc., the serum loses its germicide power, and bacilli may be found with the microscope, with or without staining.

Changes in the specific gravity may be found by using a single drop of blood in a mixture of chloroform and benzole. When it is just suspended in the fluid, the specific gravity of the latter is taken in the usual way and is the same as that of the blood. The specific gravity of blood varies with the proportion of hemoglobin in the red blood discs, so that this simple mode may be used in anemia, and so forth, instead of resorting to costly apparatus.

Changes in the acidity or alkalescence of the blood occur in various diseases, and the time of coagulation also varies.



The solution of ptomaines resulting from decomposing bacteria is doubtless irritant or poisonous to the tissues, but the leucomaines which are formed by decomposing detritus, of the blood corpuscles or other albuminoid substances, unless eliminated by excretion, will lead to auto-infection, or an alteration of structure or function by a blood poison originating in the body itself.

Dr. Prudden well expresses the significance of the germicide power of serum in the living human being by saying that it consists chiefly in recalling "the attention of therapeutic adventurers from germicidal warfare to what appears to be a natural defense of the organism against bacterial invaders, namely, a healthy condition of the blood."

"Proud of our already long list of well-defined bacterial species; consciously masters of the morphology of many forms of bacterial disease; well on the way to an intelligent and efficient prophylaxis, and glorying in the possession of ptomaines so definite as to enter at our will into the composition of tangible and even formulatable metallic salts, it is a little humiliating, though doubtless salutary, to find ourselves face to face with a series of phenomena, which seem to lie at the very basis of the knowledge of the acute infectious diseases, and yet be able to say only that they are the result of the vital forces, vitality, life. It is fortunate that we have these words and phrases, however, which conceal so much and express so little, since, under their cover, we may take breath for the assault on another of Nature's tantalizing and well-fortified secrets." (*Microscopical Bulletin*, February, 1890).

The white corpuscles are found in lymph as well as in red blood. They are merely embryonic or detached particles of living matter of different sizes. With the best homogeneous immersion objectives, they appear as spherical or ovoid, but are often quite irregular in shape, and made up of a convoluted or sponge-like

reticulum. They may have one or more nuclei which consists of a denser or finer net-work than the rest of the corpuscle. They have ameboid motions, by which they change their shape and place from time to time. The conventional pictures repeated from one text-book to another give no adequate conception of them.

The white corpuscles are normally increased during digestion, and are in excess of a normal proportion to the red cells in a number of pathologic conditions, as typhoid fever, erysipelas, anemia, etc. In leukemia, the abnormal proportion is long continued and very marked, in some cases showing one white to ten or twenty red cells, or even greater proportion. Ehrlich has shown that the leucocytes or white cells are variously affected by certain aniline stains. In leukemia only he finds some which are distinctly stained with eosin, and calls them eosinophile cells. It was thought at one time that Ehrlich's method of staining would indicate whether the leukemia depended on disease of the lymph-glands, the spleen, or the medulla of the bones, but recent investigations have thrown doubt upon such discrimination, and Jaksch has found eosinophile cells in tuberculosis, in pneumonia and in anemia.

The red corpuscles normally are flat roundish discs with thick edges, so soft and flexible that they readily adapt themselves to the curves and angles of the blood-vessels. They are of different sizes, not only in different animals but in the same animal. A few microscopists believe that by careful measurement of a large number of discs and comparing the average sizes, a discrimination may be made between the blood of one kind of animal and another. Some have made themselves ridiculous by testifying that they could distinguish the blood of a man from that of a woman. The consensus of opinion among prominent writers is that the size of the red corpuscles is insufficient for the purposes of medical jurisprudence. A view of the red corpuscles in the field

of a modern microscope, with a power of 1000 diameters or more, will show such a variety of size, above and below the average, as to render an accurate judgment doubtful.

As to the presence of a nucleus, or of an investing membrane in human red blood corpuscles, writers differ greatly, doubtless because of the imperfection of the instruments or reagents employed.

The protrusion or retraction of knobs, projections, or bead-like processes from the corpuscle has been often described, and termed "angular," "rosette," "stellate," etc. Brucke, Stricker and others consider the red corpuscle as really double, consisting of a stroma or matrix which is permeated by a softer or more fluid substance containing the hemoglobin, or coloring matter. Treatment with astringent solutions, as tannin, boracic acid, etc., causes these constituents to separate.

Klein, Heitzman and Flemming describe a fibrillar network in the nuclei of reptile blood, and others speak of fine radial filaments proceeding from the nucleus to the surface.

Elsberg, in Heitzman's "Microscopical Morphology," describes the examination of fresh human blood in a 40 or 50 per cent. solution of bichromate of potash, with a one-twelfth of an inch immersion objective, and a magnifying power of 1,000 diameters. He states that in a short time, indentations occur in the red corpuscle, producing irregular and stellate forms, which may persist or lead to separation by constriction of minute portions, or the corpuscle may become rounded again. After about half an hour protrusions of knobs take place, which may be again retracted or a pedunculated knob may be detached. Sometimes several corpuscles unite, forming chains or compound bodies. Others appear with one or more vacuoles in their substance. In many corpuscles, a distinct reticulation is seen, with thickened points at the intersection of the filaments which, without careful focusing, might be mistaken for

granules. Some of the corpuscles become pale, and mere rings or "ghosts," detached portions of which accumulate as detritus.

The reading of Elsberg's descriptions several years ago impressed me with the thought that such a variety of forms and activities indicated a corresponding variety in the structure and functions of the red corpuscles, and I instituted a series of experiments with analogous but even more complex results than those of Elsberg. The very best instruments were employed, as Zeiss's largest microscope stand, and the modern Van Heurck stand made by Watson. For objectives, I had Powell & Lealand's one-tenth apochromatic of 1.50 N A, the Bausch & Lomb H I one-eighth of 1.40 N A, a Gundlach's 1.20 H I, and several others. I used also an Abbe condenser or a Powell & Lealand's apochromatic condenser of 1.40 N A, together with the compensating eyepieces of the latter firm. The magnifying powers varied from 900 to 3000 diameters.

Various solutions were used in the examinations, as 1 per cent. solution of osmic acid, Flemming's solution, and 20 to 50 per cent. solution of bichromate of potash. The latter fluid gave most satisfaction. According to Rollett and Elsberg, bichromate of potash does not alter or seriously impair the living matter, but acts as a preserving medium, and enables us to trace normal development or natural degeneration. I found, however, that the alterations of the red corpuscles occurred sooner in strong than in weak solutions, so that some astringent action seemed due to the menstruum.

A small drop of blood was placed upon the cover-glass and quickly put on a drop of bichromate solution upon the slide. Blood from different persons and of different ages was examined, and although differences in amount and in time of alteration were perceptible, nearly all showed great irregularity in the shape of the red corpuscles.

Many of the corpuscles appeared as

concentric rings in a flat disc around a central nucleus. Some showed protuberances around the edge, as if a semi-fluid substance had exuded, or had been squeezed out of the corpuscle. These protrusions differed both in size and number. By the use of the sub-stage condenser an oblique illumination, occasional glimpses of fibers radiating between the rings were obtained. The shape and size of the discs greatly varied. Many were round, but others were oval, square, triangular, finger-like, and sometimes branched, but nearly all exhibited traces of ring structure. Some were merely flat plaques or discs, notched at the edge; others were more globular. Many had irregular knobbed protrusions both on the edge and on the flat surface, as described by Elsberg. Many of these protrusions became detached, and some of them would remain at rest while others showed amœboid changes of shape, and would rotate or move across the field of view in different directions. Portions of protruded semi-fluid substance would remain for some time attached to the edge of a disc, then with a vibratory or oscillatory motion would detach themselves and form independent masses, some stationary and other motile. Some were attached to the disc by a fiber or thread, and often such a thread would bind several masses together. In one instance two masses pulled apart so as to form quite a lengthy fiber. In others the fiber formed a tail with serpentine motion or would entirely separate from the mass. Careful focusing showed some of these fibers to be really chains of small granules, many of which appeared as scattered detritus. So similar were these granules, isolated or in chains, to micrococci, that they would have been deemed such if they had not been seen in the act of stripping themselves from the edges of the viscid red corpuscles.

The result of my observations convinced me that the phenomena described were the result of a natural degeneration of the red corpuscles, hastened perhaps by the

action of the bichromate solution. The variety in the appearances may be due to essential differences in the corpuscles themselves; differences which are both morphological and physiological. Considering the various offices which the blood performs in the animal economy, embryonic, nutritive, metabolic and excretive, we may reasonably expect the structure of the corpuscles to differ, and the effects of chemical and physical agencies upon them to be far from uniform. The more embryonic forms may not exhibit the fully formed structure, while those engaged in carrying away effete matter may be ready to disintegrate. Thus we may account for the variety in the appearance of the corpuscles and for the ready decomposition of some, while the structural integrity of others persists longer.

Under the name of poikilocytosis, some have described the irregular forms of blood discs occurring in debilitating diseases, especially in pernicious anemia. A large number of minute cells has given rise to the term microcythemia, and abnormally large cells to macrocythemia. Such terms are really unnecessary, and are but additions to a list of technicalities already too large. The varying appearances of decomposing cells, especially when the normal process is exaggerated by morbidly depressing influences cannot be described by such terms.

One of the effects of the bichromate solution on the red blood corpuscle is to harden and contract the outer surface so as to wrinkle it in such a manner as to stimulate the plasmodium malarie. This has occurred so many times as to throw doubt upon some preparations and observations. I have not been able to examine many specimens of malarial blood, but some European slides, stained after Ehrlich's method, and marked plasmodia, can scarcely be distinguished from the wrinkling of the cell in the bichromate solution. The ameboid and flagellate forms of the organism will afford proof of its presence, but an irregular vacuity in the cell is no proof.

As an example of the relation which such examinations of blood as have been described bear to practical medicine, reference may be made to an examination made by the writer some years ago, of the blood corpuscles in eighteen cases of beri-beri, which had been transferred from a Brazilian corvette to the Marine Hospital in San Francisco. A full account, with microscopic illustrations, may be found in the Annual Reports of the Supervising Surgeon-General at Washington. Specimens of the blood from each patient were sent to me, and examination showed that the red corpuscles were in various stages of disintegration. The ring structure of the broken cells and the resemblance of the detritus to micrococci was evident. The clinical history of each case fully confirmed the microscopic examination, although the patients had not been seen and the slides of blood drops were merely numbered from one to eighteen. Acting upon the suggestions of the microscope, iron and quinine were given in large doses, with a generous diet. Under this treatment, the blood corpuscles of the patients speedily recovered their normal appearance, and in a short time all the seamen returned to duty. The surgeon in charge of the hospital (Heber Smith, M. D.), in his report to Washington, says: "It is possible that a microscopic examination of the blood of all the men on board the corvette before she sailed from Brazil, would have revealed just those members of her crew who were to suffer from the disease."

Jour. Amer. Med. Assoc., July 28, 1894.

### THE LEUCOCYTOSES.\*

By WM. S. CARTER, M.D.

#### THE LEUCOCYTOSIS OF PHYSIOLOGICAL STATES.

By leucocytosis let us understand a condition in which the total number of leucocytes in the blood is increased, usually being due to a disproportionate increase of the multinuclear variety, although exceptionally one of the other varieties found in normal blood may be increased.

I. *Digestion Leucocytosis*.—In a series of experiments on thirty-five different in-

dividuals made by Dr. Hermann Rieder, it was found that a distinct leucocytosis made its appearance about two hours after the ingestion of a meal, reaching the maximum, in three to four hours, and gradually disappearing in six to seven hours. The degree of leucocytosis during digestion is quite variable, sometimes being absent altogether. It does not seem to be affected by the time of fasting before the meal. That it is not due to the physical process of flushing out the lymph-spaces by the fluid absorbed from the alimentary tract is shown by the fact that it is not constantly present, and that tea and coffee, or very weak soups, or a meal of carbohydrates, in which the digestive process is an active one, all fail to cause leucocytosis. A mixed diet will cause slight leucocytosis, while a meal of proteids shows the greatest increase. Dogs fed upon a pure meat diet show double the normal number of leucocytes, while men on mixed diet show an increase of about one-half the normal number. It is said that vegetarians do not show any digestion leucocytosis.

Children show a more pronounced digestion leucocytosis than adults, but it is questionable if this is as marked as mentioned by some writers. \* \* \* \*

My experiments confirm the experiments of others in that carbohydrates fail to produce leucocytosis, and that a diet of proteids produces the greatest leucocytosis,—amounting to double the normal number. It has been stated that fats do not produce leucocytosis, but to this the writer cannot agree. In my experiments the degree of leucocytosis after the administration of fats was quite as great as after a diet of proteids. As the fats are absorbed largely through the lacteals, one would naturally expect some alteration in the leucocytes. W. B. Hardy has studied the white blood-corpuscles of daphnia very carefully, and found that when fats were given, within a few hours fat droplets were found within the cells, and that even ten to twelve hours afterwards al-

\* Abstract from University Medical Magazine, Philadelphia, Oct., 1894.

most every white blood-corpuscle of these animals contained fat droplets.

The leucocytosis after a meal of proteids has been thought to be a means of disposing of the peptones after their absorption,—of converting them back into coagulable albumens. From the fact that peptonuria frequently occurs in diseases in which leucocytes are being destroyed rapidly (*e. g.* pneumonia), and that peptones are often found locally in areas in which there is an extensive destruction of leucocytes, it has been supposed that these cells are rich in peptones.

Hofmeister has observed that many karyokinetic figures occur in the lymphoid collections of the intestine during the absorption of nitrogenous foods, and we must also remember that leucocytosis is by no means constant after a mixed diet, and may even be absent after a diet consisting very largely of proteids (Rieder). These facts would indicate that the leucocytes are probably not concerned so much in handling the products of normal digestion as in dealing with some form of intoxication which is apt to occur from this digestion.

II. *The Leucocytosis of Pregnancy.*—The writer has had no experience in examining the blood of pregnant women, but it would appear that the frequency of leucocytosis in this state is overdrawn. According to the results given by Rieder, about one in every five or six cases fails to show leucocytosis, and when it does occur, is not at all pronounced, never amounting to double the normal number. The time of gestation and the number of the pregnancy appear to bear no relation to the degree of leucocytosis. The number rapidly returns to the normal after delivery in most cases, although there may be a temporary increase immediately after delivery, probably the result of the loss of blood.

III. *Leucocytosis of the New-Born.*—Almost all children seem to show some leucocytosis when born. This lasts a variable time, and then gradually sub-

sides, usually disappearing in a few days. It is interesting to note that the fractional counts show a relative excess of eosinophiles and also a great abundance of lymphocytes.

IV. *Leucocytosis after Massage.*—You are all familiar with the results recently published by Dr. John K. Mitchell. Examining the ten cases in which a count of the leucocytes was made, we find a decided leucocytosis in four, a slight increase (too slight to be called leucocytosis) in three, and no alteration at all in three, although in two of these three there was a distinct increase in the number of red blood-cells. On the other hand, in one case there was a distinct increase of the leucocytes, although the number of red blood-corpuscles was not affected.

V. *The Leucocytosis after Cold Baths.*—Professor Winternitz first pointed out that patients treated by cold baths, as in the Brand treatment of typhoid fever, showed a leucocytosis which comes on very shortly after the bath and lasts several hours. This same condition is produced in normal individuals by cold bathing. Since his first communication Winternitz has studied the effects of thermic and mechanical measures (douches, cold pack, friction) applied to the surface of the body. The maximum increase of red blood-cells was 2,000,000 per centimeter, the Hb was increased 14 per cent., while the leucocytes were trebled in number. The maximum was not always seen at once after the treatment, but often an hour afterwards. The colorless corpuscles began to increase at a time when the red blood-corpuscles were beginning to decrease. Applications of cold to the lower extremities were followed by a diminution of leucocytes in the upper extremities, while blood from the parts to which cold was applied showed an increase of the leucocytes. General application of gentle heat was followed at first by a diminution and, later, by an increase in the number of red blood-corpuscles. Dr. W. S. Thayer has reported twenty cases of typhoid fever

treated by the Brand method, in Professor William Osler's wards in the Johns Hopkins Hospital, in which the number of leucocytes after a cold bath was about double the normal number. There was no change in the normal proportion of the different varieties of leucocytes. It would appear that the application of cold, like massage, produces leucocytosis in a mechanical way,—the invigorating influence upon the heart, vessels, and tissues causing the stagnant blood of the tissues to hasten back into the blood-vessels.

#### THE LEUCOCYTOSIS OF PATHOLOGICAL STATES.

I. *The Leucocytosis of Cachexias.*—Malignant growths usually cause a leucocytosis, but quite often it is absent. Just what relation the location or kind of growth has upon the leucocytosis cannot be positively stated. In twelve cases with malignant neoplasms examined by Rieder, eight showed leucocytosis, while four (two cancers and two sarcomas) failed to show it. In nineteen cases examined by Dr. R. C. Cabot, twelve showed leucocytosis and seven did not, most of the latter being either small tumors or cases in which cachexia had not yet developed.

So far as we can judge from the cases reported, those with cancers situated at the pyloric orifice of the stomach seem to show the most pronounced leucocytosis, while those of the uterus or of the lip do so less frequently. However, the number of cases studied is entirely too small to warrant any positive conclusions.

The size of the growth does not seem to affect the number of leucocytes, for Cabot gives two cases of very extensive growth which did not have any leucocytosis. \*\*

Cabot attributes the leucocytosis to the cachexia,—for in two of his cases, in which it was absent at first examination, it was present later, when the cachexia became pronounced. On the other hand, some of Rieder's cases show the usual disturbance of the red blood-corpuscles seen in cachexias without any leucocytosis. That it is not due to the physical state of the blood seen in these conditions (such as hydremia, lessened alkalinity, or altered isotonic equivalent) is evidenced by the fact that in chlorosis, in which these conditions are present, leucocytosis is usually absent. Further, in animals in which the normal condition of the blood has been

altered experimentally, there is no change in the leucocytes. \* \* \* \*

From what has been stated, it seems highly probable that the leucocytosis of cachectic states depends upon some special intoxication, which probably arises from the neoplasm causing the cachexia. As it is most marked late in the disease, it may be that it sometimes arises from septic infection, or from metastatic involvement of the lungs or serous membranes.

II. *The pre-agonal leucocytosis*, observed in many patients who die slowly, can probably be attributed to the same cause,—i. e., some toxemia,—for it is not present in all cases of slow death, and cannot be produced experimentally by chloralizing animals, and causing them to die slowly, as has been shown by Rieder.

III. *The post-hemorrhagic leucocytosis*, observed in man, is quite constant, and usually proportionate to the loss of blood. I have had no opportunity of studying the blood of men after a severe hemorrhage, but have failed to produce leucocytosis in dogs by bleeding experimentally. This is in accord with the experiment of Rieder,—for in his experiments, in which he removed about one-half the estimated total quantity of blood of an animal and did not follow it by saline transfusion, there was no leucocytosis. In one of my experiments the red blood corpuscles were reduced to one-half the normal number, with an actual diminution of the white blood-corpuscles. \* \* \* \*

The results show that hemorrhage, even when sufficiently severe to cause death, does not produce in dogs (at least in a few hours) a distinct leucocytosis.

The very pronounced leucocytosis, which Rieder produced in dogs by copious bleeding, and then transfusing the same quantity of normal salt solution, probably explains the cause of post-hemorrhagic leucocytosis. Very probably, the leucocytosis seen in man after a hemorrhage, even without transfusion, can be explained by the fact that the tissues of man are richer in the juices of the body, and hence more lymph is available in sudden emergencies. It has been shown by Dr. Wm. E. Hughes and the writer that the absorption of subcutaneous injections of large quantities of saline solution in man, made at the time of copious bleeding, which we recommend in uremia, takes place with a rapidity that is truly astonishing.

## Recent Medicaments.

**DULCIN.**—Dulcin is an artificial sweetening agent, 200 times sweeter than cane sugar. It has a pure and agreeable, natural sweet taste; and as physiological tests (Kobert and others) have proved that the amount necessary for use does not cause disorders in the human organism, dulcin can be advantageously employed for all purposes as a perfect substitute for cane sugar. Dulcin, or parphenetolcarbamid,  $\text{CO. NH}_2 \cdot \text{NH} \cdot \text{C}_6\text{H}_4 \cdot \text{OC} \cdot \text{H}_2$ , introduced by Berlinerblau, is prepared by bringing urea to act upon hydrochlorate parphenetidin, or diparphenetolcarbamid, at high temperature under pressure. It melts at  $173$  to  $174^\circ\text{C}$ .; is soluble in 25 parts of alcohol, 50 of boiling water and not less than 800 of cold water; it can be boiled in water without decomposing and will not escape in the steam, but if heated beyond its melting point it changes and becomes useless.

**CHLORAL HYDRATE** is now entitled to a first quarter-century anniversary. Liebig discovered the body in 1832, but Liebreich was the first to use it as an anesthetic in September of 1869. Chloral-hydrate by Liebreich (1869), Cocaine by Koller (1883), and Pental by von Mering (1891) form a closely related triumvirate.

**AMMONOL**, or ammoniated phenylacetamide, has just been introduced (backed by a testimonial from Dr. Cyrus Edson) as a stimulating expectorant, analgesic, antipyretic, antiseptic, cholagogue, anodyne, anti-spasmodic, and aid to digestion—correcting hyperacidity and preventing fermentation. Dose, 5 to 20 grains. It is soluble in water, and has a strong ammoniacal odor. No further information is obtainable thus far. The surmise is justified, and probably not far wrong, that this product is a simple mixture of acetanilid and ammonia, and that it possesses no distinguishing merits to promote its general adoption in medical practice.

**FERRATIN.**—The distinguished French savant, PROF. GERMAIN SÉE reported his views on the therapeutic value and place of FERRATIN to the Academy of Medicine of Paris, August 21, 1894.

PROF. GERMAIN SÉE said, that he had found occasion during his attendance at the Hotel Dieu to employ Ferratin and to study its effects on various clinical cases, which he took pleasure in reporting.

Ferratin seemed to have a direct significance in the nutrition of the tissues, and even after prolonged use it produced no derangement of the stomach or intestines. It had a pronounced curative effect. It acted mildly astringent, without causing hurtful excitement or constipation—disturbances commonly following the use of ordinary ferruginous preparations; but as a remarkable fact, it caused a strong increase of appetite—always precarious and capricious in anemic patients—and also regulated the movements to a normal condition. Its administration was free from any unpleasant side or after-effects.

Ferratin, 0.5 to 1.5 grammes per day in divided doses, was primarily a valuable food product; it excited appetite and thereby offered a powerful adjuvant in permitting the absorption of food, and it contained a fixed proportion of iron which was highly assimilable and thus replaced a vital insufficiency.

The administration of FERRATIN, said PROF. GERMAIN SÉE, was indicated in

Those suffering from anemia from hard work, though the patient have the appearance of good health;

Those, of both sexes, affected with chlorosis;

Those weakened by too rapid growth and puberty;

Those fatigued by study;

and, in short, all in whom a diminution of red blood corpuscles had ensued, due no matter to what causes.

PROF. GERMAIN SÉE concluded his report by promising that he would keep the Academy informed as to his further studies of Ferratin, which he was conducting simultaneously at the Hotel Dieu, in his medical clinic, and in his physiological laboratory.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### AGNOSTICISM IN MEDICINE.

In medical science, as in all other channels of human progress, we have those who may be classed as non-believers, usually designated, therapeutic nihilists. Notwithstanding the altruistic character of the teachings in the healing art, the occasional cropping out of pessimistic tendencies is inevitable; but in these days of rapid advancement, with the introduction of new theories and methods which threaten to revolutionize the practice, it seems appropriate to call attention to one phase that hitherto has been overlooked, namely, that which properly comes under the head of agnosticism.

The following anecdote is related of the late Professor SWING, the eminent divine of Chicago, while engaged in an animated discussion with a free-thinking Irishman. "Your mind, my dear friend," said Professor Swing, "seems to be in a twilight state. You cannot differentiate the grains of mistrust from the molecules of reasonable confidence. You are traveling the border land, the frontier between the paradise of faith and the Arctic region of religious incredulity. You are an agnostic." "Divil a bit," said Pat, with mingled amazement and indignation, "I'm a dimmycrat, ivery inch o' me!"

The parallel is this: Many of those who are, or pretend to be, pessimists, nihilists, or iconoclasts, really do not know just exactly what is their true cause of opposition. They object, simply because they are "frinst" ever thing and everybody, and like some of the recent strikers, seem bound to hang on until somebody gives in. Others again, appear to have more definite views, but it is to a class of physicians entertaining certain peculiar tenets that the term agnostic properly applies.

The doctrine of the medical agnostic is the doctrine of doubt, and his whole work, his walk and conversation, emphasize this belief, this disposition to regard everything novel or in the least out of the beaten track as doubtful. Indeed, his whole life seems to be exhausted in studying how to compass the downfall of things which are regarded by others as true, and which he himself is bound to confess are demonstrable; but nevertheless, he clings to this phantasmagoria and envelopes himself in a mental atmosphere in which the one word, doubt, is continually reproduced.

Whatever he believes, he accepts only with the proviso that it is doubtful; that it is uncertain; that if possible, it is scarcely probable; and sailing along in this self-regulated current, he frequently finds himself tossed against the rocks, or stunned by the white-caps that occasionally dash over his frail craft and threaten to wash him overboard.

With the advent of scientific methods, with the ability to demonstrate claims of whatever nature, with the thousands of willing workers in the vast field of therapeutics, while there is room for the agnostic, his presence is of no practical moment. Like the cipher, he has but a relative value and would be useless did he not serve to fill vacant places. If one can believe in the doctrine of fore-ordination, it will serve to reconcile him to the continued bickerings of the agnostic in medical science; but may his race never increase.



### COUGH MIXTURES.

Cough mixtures should be regarded as a relic of ancient and unscientific methods of practice, and as most of them do more harm than good, their employment should be relegated to well-merited oblivion.

This sweeping denunciation of a time-tried, and, shall we say, fire-tested remedy? apparently deserves some explanation, and as the season of the year is approaching when such preparations will be in active demand, some arguments against their reckless and indiscriminate use will be presented.

In the first place, cough mixtures do not benefit or improve the cough as we now understand a cough should be improved or benefited. True, the anodyne ingredient may lessen the tendency to cough, but opium or any of its preparations do harm by arresting the normal secretions, and thus the system becomes affected by the soluble poisons from the stomach and the intestine, to say nothing of the secretions retained by the kidneys, the skin, the pulmonary structures and the mucous membrane lining the upper air-passages. When a person is enjoying fairly good health, he does not take cough mixtures as an agreeable pastime. No physician thinks of "bracing up" in a cold morning with a tablespoonful of cough mixture. If a man was varnished or painted all over, the elimination of poisons would be so interfered with that death would soon ensue, and this is substantially the effect that is produced by the usual cough mixture in general use. That patients who take cough mixtures do recover, will not be denied, but they recover in spite of the mixture; and it is a stubborn fact that such patients are always a considerable time in regaining their former health, simply because they suffer from the effects of toxic products taken into the circulation.

Some physicians favor a Turkish bath as a remedy for a bad cold, and in exceptional cases this plan works well; but

it is not suited to many, for the reason that a bad cold is but the warning signal that the vitality of the organism has been reduced while the susceptibility to disease is increased. An able-bodied man accustomed to Turkish baths can stand one of these in case of a cold, but it is of more importance that the condition of the alimentary canal should receive the same or like attention. The danger is not all from without; it is probably greater from the alimentary tract than from the skin, and those who advocate the use of the bath, to be consistent, should at the same time insist upon the free use of a suitable saline.

In the second place, all successful (?) cough mixtures contain nauseants which tend to disorder the digestion; but were this effect only temporary, no material harm would ensue. These nauseants, however, are not promptly eliminated, and when the patient would be in a fair way to recover, their insidious influences begin to manifest themselves, so that neither the physician nor patient can understand why convalescence is prolonged. Cough mixtures are doomed; eventually, they will be damned.

In the third place, cough mixtures contain more or less saccharine substance, usually sugar in the form of syrup, originally incorporated probably to make a nauseating draught palatable; but it is now well-known that the introduction of sugar into the stomach, when in an unhealthy condition, is most objectionable, inasmuch as it starts up fermentation, produces body-heat, and even by the wildest stretch of the imagination has no distinctly beneficial effect upon the cough. Let us have a new regime for the winter campaign.

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FROM the communication of Dr. PORTER published in this number, we learn that this energetic and enthusiastic physician is about to make some clinical investigations, reports of which are promised for the *AMERICAN THERAPIST* in the near future.

**ANTITOXINE TREATMENT OF DIPHTHERIA.**—It is reported that the antitoxine treatment of diphtheria is rapidly coming into favor in England. An epidemic occurred recently at Norwich, in which the mortality by the ordinary treatment reached 33 per cent., but after a supply of the antitoxine serum had been secured, all cases were inoculated and, fortunately, all recovered.

**LUZERNE COUNTY (PA.) MEDICAL SOCIETY.**—The first regular meeting of this society for the autumn of 1894, was held at Wilkes-barre, Pa., in the early part of the month, and was one of the most interesting and successful meetings in the history of the organization. Whether the fact that the principal essayist, Dr. Charles P. Knapp, of Wyoming, Pa. had selected "Cellular-Therapy" for his subject had anything to do with the result, the readers of the *AMERICAN THERAPIST* will be able to judge on perusing his article which will appear next month. We congratulate Dr. Knapp and also the society in having their attention directed to a topic of such great and far-reaching importance.

At the same meeting, pathological specimens from typhoid fever with ulceration of the bowels were exhibited by Dr. Stewart. Dr. Guthrie presented for examination a floating cartilage removed from the knee-joint; also a vermiform appendix removed for catarrhal inflammation.

**LUNACY STATISTICS IN ENGLAND.**—The annual report of the English Commissioners in Lunacy has just appeared and presents some alarming figures. For example, in England alone, there are no less than 92,067 lunatics, idiots and persons of unsound mind. Special attention is directed to this subject here, owing to the severe criticism on the management of the Pennsylvania Hospital in our last number, by Dr. James Wood, of Brooklyn, N. Y. The British newspapers ascribe the great increase during the past year (2245 cases) to the excessive heat, but no such reason is given by the managers of the Pennsyl-

vania Hospital for the small (comparatively) number of recoveries, although Dr. Wood shows that the excessive use of tea and coffee doubtless had something to do with the very unfavorable results of treatment.

**NEWSPAPER MEDICINE.**—The following directions are clipped from the Sunday issue of a prominent Philadelphia paper:

"To remove fullness from beneath the eyes take twenty drops of the tincture of the chloride of iron in half a glass of water after meals (take through a glass tube) for eight weeks. Between meals and when retiring at night take five drops of the tincture of digitalis in a wineglassful of water for three weeks; discontinue for one week and go on for three more weeks."

The above directions are intended, evidently, for some one suffering from organic disease of the heart, and as this slip was cut out several weeks ago, it is doubtful if the patient desiring cheap advice is now alive to tell the tale of his misfortunes. If he has survived the use of the chloride of iron, the digitalis will probably kill him, and we shall be greeted with the startling headline announcing sudden death of a citizen hitherto enjoying apparently good health with the exception of some slight heart ailment which was not considered of sufficient importance to demand the attention of a physician.

Now, the question is, would this patient have been better treated by the ordinary doctor? Probably not. Digitalis and iron have so long been associated with cardiac complaints that it seems impossible to separate them, and as a consequence, men, and women too, in every station of life, are gradually dropping off without apparent cause for their disappearance. It is to be hoped the rising generation of physicians will take a different view of managing disorders of this nature, treating them upon a rational basis. Mortality rates will be lower, and business interruptions less frequent.

THE DIPHTHERIA SERUM treatment of Dr. Roux, of the Pasteur Institute, recently presented in detail before the Buda-Pest Hygienic Congress, is to have a thorough trial through novel means. The Paris *Figaro* has undertaken the collection of public subscriptions with which the product shall be purchased and furnished free to all physicians in France. While this effort has a laudable purpose, it is misapplied in theory and in fact. When the State or self-constituted organizers begin to supply medicines free, the communities will also be ready for free bread, meat and beer.

**IMMUNITY.**—Buchner (*Munch. med. Woch.*) discusses the advances in this subject. In connection with the exact causes of immunity, the great difference between natural and acquired immunity has been definitely established. Natural immunity seems to be brought about by the bactericidal action of a protective substance or alexin in the blood serum. This alexin differs from the antitoxine found in the serum of animals artificially made immune. Alexin acts upon the bacteria, and also upon the red cells, and even leucocytes belonging to animals of other species, whereas such bactericidal and globulicidal action is not possessed by antitoxine. Alexin is most easily decomposed, whereas antitoxine is a stable body. The effects of antitoxine are the same, whether coming from one animal or another, and only depend on the degree of acquired immunity possessed by the animal. The author contends that the serum of animals made immune contains both alexin and antitoxine. Thus a body can be extracted from the blood serum of an animal made immune and can be transferred to another. There are two explanations in regard to this body—namely, that it is a reactive product on the part of the tissues, or a modified product of the bacteria cell. The chief point, however, is that the living body is necessary for the production of this antagonism of the antitoxine against

the cause of the disease. The author would limit the term immunity to the acquired form, and thus speak of specific immunity, including the immunity against the bacteria poison and of natural resistance. The action of tuberculin does not lie in any specific immunity, but in an increased natural resistance. In this respect he refers to the researches of Hueppe in relation to cholera, and those of Fraenkel and Rumpf (*Epitome*, December 9th, 1893, par. 475) in relation to the treatment of enteric fever by killed cultures. The author maintains that endeavors are being made in the protection against disease by increasing the natural resistance. He then quotes an experiment in which sterilized wheaten gum was introduced into the pleural cavity of a large rabbit. After it was killed the gum was found infiltrated with leucocytes and possessed of marked bactericidal powers against the *B. coli communis*. The leucocytes were destroyed by freezing, and yet the bactericidal powers remained. These powers were soon destroyed by heat. The author would attribute these powers to the presence of alexin, probably derived from the leucocytes. He looks upon the blood as the great antiseptic and disinfectant of the body, and draws attention to the importance of its investigation in diseased conditions.—*British Medical Journal*.

**CRUELTY TO THE INSANE.**—A report has recently appeared in the Philadelphia papers to the effect that one of the inmates of the Norristown Insane Asylum, a State institution, has entered complaint to the trustees against the cruelty of the attendants. Miss Librand is but slightly demented and makes the complaint on behalf of her fellow-sufferers, and it is said, the trustees were very much impressed with her statements. It should be remarked that this institution combines the features of an asylum with that of an almshouse, hundreds of patients being incarcerated there every year simply because their relatives are unable or unwill-

ling to take care of them. In such instances the report is circulated that they are placed there for treatment, that they have special care and that a good round price is paid monthly for medical attendance and nursing. This is all a farce, as no treatment is given, except to those who are noisy; no special or extra care is given to any, all being treated as paupers, for which the county sending them pays two dollars per week. Still, that is their misfortune, and the attendants should be compelled to treat them with at least a modicum of kindness.

**CLASSIFICATION OF NUCLEIN AND NUCLEO-ALBUMIN.**—The following classification of nucleins and nucleo-compounds, is given by Hammarsten in the *Zeitschrift für Physiologische Chemie*.

**Nuclein**, to designate, after Kossel, such phosphorus containing substances as remain in the peptic digestion of complex proteids, which further are compounds of albuminous substances with nucleic acid and yield xanthin-like bases by decomposition.

**Paranuclein**, to include, after Kossel, nuclein-like bodies which are formed in peptic digestion of simple albuminous substances, but which do not yield nuclein bases. Since these substances differ much among themselves, and are only similar in that they resemble nucleins in certain particulars, Hammarsten suggests that they be called *pseudo nucleins*.

**Nucleo-albumin**, to include only phosphorus-containing simple albuminous substances, as, for example, casein, which are not compound proteids, and by peptic digestion yield pseudo-nucleins.

**Nucleo-proteids**, to include all complex proteids which by peptic digestion yield, besides simple proteids, true nucleins, and give by more profound decomposition nuclein bases. To this class belongs a compound which the author has discovered in the pancreas and calls the pancreatic nucleo-proteid. It is made up not only of nuclein in combination with an albuminous substance, but contains some third part, perhaps animal gum, which, by heating with dilute acids, yields a reducing body. Hammarsten is unable to state the exact nature of this reducing substance, though the evidence favors the view that it belongs to the penta-glucoses. The fact that this complex proteid of the pancreas is capable of yielding a reducing body is of interest in connection with the continuation of glycosuria or diabetes in patients from whom all carbohydrates are withheld for a considerable time, and whose food is hence entirely proteid in nature; it suggests a possible explanation of the origin of sugar from proteid matter.—*Am. Drug. and Pharm. Rec.*

**THE DIETETIC TREATMENT OF PHTHISIS.**—The following suggestions by Dr. Henry P. Loomis (*The Practitioner*), are worthy of careful consideration:

1. Never take cough mixtures if they can possibly be avoided.

2. Food should be taken at least six times in the twenty-four hours; light repasts between the meals and on retiring.

3. Never eat when suffering from bodily or mental fatigue or nervous excitement.

4. Take a nap or at least lie down for twenty minutes before the mid-day and evening meals.

5. Take only a small amount of fluid with the meals.

6. The starches and sugars should be avoided; also indigestible articles of diet.

7. As far as possible each meal should consist of articles requiring about the same time to digest.

8. Only eat so much as can be easily and fully digested in the time allowed.

9. As long as possible systematic exercise should be taken to favor assimilation and exertion; when this is impossible, massage or passive exercise should be undergone.

10. The food must be nicely prepared and daintily served—made inviting in every way.

He proposes the following as a diet sheet in the early stage:

On awakening, eight ounces of equal parts of milk and seltzer, taken slowly through half an hour. Breakfast: oatmeal and cracked wheat\* with a little sugar and an abundance of cream, rare steak or loin chop with fat, soft-boiled or poached egg, cream toast, half-pint of milk, small cup of coffee.

Early lunch: Half-pint of milk or small teacup of squeezed beef-juice with stale bread.

Mid-day meal: Fish, broiled or stewed chicken, scraped meat-ball, stale bread and plenty of butter, baked apples and cream, two glasses of milk.

Afternoon lunch: Bottle of kumyss, raw scraped beef sandwich, or goblet of milk.

Dinner: Substantial meat or fish soup, rare roast beef or mutton, game, slice of stale bread, spinach, cauliflower, fresh vegetables in season (sparingly).

\* NOTE.—In all cases of disordered nutrition, oatmeal, cracked wheat and "grits" of every description must be interdicted at the morning meal or the patient suffers constantly from fermentation. The combination is well calculated to produce gas, arrest the normal secretions and favor the absorption of toxins.—ED.

## Book Notices.

**SYLLABUS OF LECTURES ON HUMAN EMBRYOLOGY:** An Introduction to the Study of Obstetrics and Gynæcology. For Medical Students and Practitioners. With a Glossary of Embryological Terms. By WALTER PORTER MANTON, M.D., Professor of Clinical Gynæcology and Lecturer on Obstetrics in the Detroit College of Medicine. Illustrated with Seventy (70) Outline Drawings and Photo-Engravings. Cloth, 12mo., pp. 126, interleaved. Philadelphia: The F. A. Davis Co., 1894. (Price, \$1.25 net).

Professor Manton's work has appeared at a most auspicious time, as recent advances in medical teaching demand information of a fundamental character, and from its thoroughness and reliability, together with the elegant dress given it by the publishers, it will meet with a large sale. The study of embryology is both interesting and instructive to the ordinary, intelligent reader; but to the medical student, and to very many practitioners, it has a practical bearing, and we extend to this small volume a hearty welcome. Section VI., the development of special organs and parts—the heart, blood vessels and blood, is especially to be commended, since further investigation of the physiological complexus is calculated to throw considerable light upon many obscure pathological conditions that are now almost a *terra incognita*. The author is to be congratulated upon his devotion to science, and we bespeak for his work a favorable reception on the part of the profession.

**METHODS OF PATHOLOGICAL HISTOLOGY.** By C. VON KAHLEN, assistant Professor of Pathology in the University of Freiburg. Translated and edited by H. MORLEY FLETCHER, M.A., M.D., Cantab. M.R.C.P., and with an introduction by G. SIMS WOODHEAD, M.D. London and New York: Macmillan & Co., 1894. (Price \$1.40.)

A few years ago a work of this kind would have fallen still-born from the press; but of late years, bacteriological and pa-

thological research and requirements have grown to be of such a character that this book seems to be one of the most timely that has appeared in recent years. It is evidently written by a man thoroughly acquainted with every detail of pathological technique, and what is still more pleasing, he carefully notes every detail for the guidance of others. The fault of books of this character often is that they assume too much on the part of their readers, and omit the very specific directions that the student looks for.

In the beginning are a few pages of instructions on the manipulation of the microscope and its accessories. The author then takes up seriatim the subjects of examination of fresh tissues, hardening, decalcification, embedding, injection, staining processes and examination of degenerated tissues. The examination of bacteria, moulds and animal parasites comes next, followed by that of special tissues and organs, the closing chapter being devoted to microscopical examination for medico-legal purposes. Not the least agreeable feature is the typography and arrangement of matter—everything that could be desired in a ready reference work. The scientific laboratory worker will find here at an instant's command all the technical information he may wish, and the ordinary physician, who has a microscope for use and not for ornament, will be surprised to find how much work relating to practical pathology he can perform himself, guided by this work.

E. B. S.

**ESSENTIALS OF THE DISEASE OF THE EAR,** arranged in the form of questions and answers. Prepared especially for Students in Medicine and Post-Graduate Students. By E. B. GLEASON, S.B., M.D., Clinical Professor of Otology, Medico-Chirurgical College of Philadelphia, etc.. SAUNDERS' QUESTION COMPENDS (No. 24). Cloth, 12 mo., pp. 147, Philadelphia: W. B. Saunders, 1894. (Price, \$1.00).

For the general practitioner as well as the specialist this little volume will prove

an acceptable addition, since it is brief, compact, readable, and contains all the recent information to be had upon the subject. The illustrations also add to its attractiveness and to its utility, and it will therefore find an audience with those who wish to improve their knowledge upon the subject of diseases of the ear. As the author suggests, it will be of service to those contemplating a post-graduate course, bringing directly to their attention the most important details which are likely to come before them in clinical study. A list of appropriate formulæ is appended, and with a sufficiently copious index along with a full table of contents, consultation is rendered easy. Whether one can approve the general plan of books in the form of question and answer, an exception must be made in this instance, as the questions presented serve to attract the attention of the reader and stimulate him to further investigation. Rohrer's diagnostic table of diseases of the ear has been introduced, and will be found a valuable addition.

**DYNAMICAL THERAPEUTICS:** A work devoted to the Theory and Practice of Specific Medication, with special reference to the newer remedies. By HERBERT T. WEBSTER, Professor of the Principles of Medicine and Pathology, California Medical College (Eclectic), etc. Assisted by J. U. LLOYD, Ph. D., and KENT O. FOLTZ, M.D. Leather, 8 vo., pp. 852. Oakland, California: Published by the Author, 1893. (Price, Cloth, \$5.00; Leather, \$6.00, postpaid).

The impartial critic is always encouraged when a really meritorious work comes to his hands for review, because it affords an opportunity for complimenting the author on his undertaking, and besides, in medical literature, it is a source of satisfaction to think of the great good that will follow a proper diffusion of the knowledge therein contained. The present work came to hand a few weeks ago, and was rather hastily examined, but even this cursory examination devel-

oped certain facts which ought to be placed before the profession, since the truths put forward are of such a nature that they cannot be gainsaid, and must, therefore, be recognized and incorporated in what is now known as the "regular" curriculum of medical study.

Our author uses the term "*dynamical*" to indicate the effects of the remedial agents upon the human organism not ascribable to either chemical or mechanical causes. He introduces this as opposed to "*statical*" therapeutics, the object of which is to oppose or arrest normal function, and it must be confessed that the term has a distinct significance in this particular relation. Of course, this naturally leads to a consideration of cell function and cell life, and although this subject is not elaborated to its fullest extent, it is probably as well presented as the knowledge of experimental physiology would permit at the time of writing. As illustrating the rational views of the author, the following will suffice (p. 19):

"Not all remedies, however, can belong to these two classes; quite a number of agents exhibiting excellent dynamical properties, manifest little if any physiological action, even in exorbitant doses. Olden-time therapeutists would have pronounced such agents inert because of this, but the excellent clinical effects resulting from their use fail to justify such a verdict. \* \* \* \* \*

"Both kinds of action are of value in the management of disease, when the physician is liberal enough to avail himself of them; but the average homeopathist disdains the physiological effects of drugs, except so far as they serve as indicators for use in dynamical doses, while the adherent of old prejudices is unwilling to entertain belief in the attenuated doses essential to successful dynamic action."

In respect to cell function, the views of the author harmonize perfectly with the teachings of the writer in regard to cellular therapeutics, as the following extract will show (p. 22):

"Thus, every cell is specially constructed for its purposes, and if normal conditions fail, the therapeutic agent prob-

ably restores it to its former state of activity. \* \* \* \* \*

"Tissue remedies act in various ways upon a given part. One may influence the nutrition of the cells, or of the nutritive center, in such a manner as to encourage retrograde metamorphosis and the building of better structure, thus being applicable to chronic lesions, where there is considerable alteration of tissue. Another may influence the circulation in the part through the vasomotor centre, and thus relieve acute congestive conditions. A third may affect specifically some function, and still another may be adapted to a painful state of the part—a remedy for myalgia or neuralgia."

The general plan of the work is as follows: Part I. comprises chapters on Therapeutic Classification, The Principles of Selection, The Science and Art of Prescribing, The Medicine Case, together with a brief contribution by Professor Lloyd, Notes on Practical Pharmacy, and occupies 172 pages. Part II. is devoted to Specific Therapeutics, of which some of the section-headings may be mentioned, as follows: Plasma remedies, antiseptics, antizymotics and correctives, remedies affecting the nervous system, the circulatory system, the lymphatic system, the digestive organs, the respiratory organs, the urinary organs, etc., and to make up for the lack of a table of contents, two very elaborate indices are added, one of remedies and a general index.

It would not be policy to enlarge upon the present notice, but it should be stated that the investigations of the author prompt him to recommend the employment of small doses, and that his reasons given therefor, while not always backed up by experimental physiology, are susceptible of clinical proof, and no doubt, in time, his teachings must bear fruit in the improvement of our sometimes crude methods of treating various diseased conditions. It is not improbable, too, that clinical deductions will eventually stimulate physiological research, and that the principles of rational medicine will be interpreted by physiological demonstration.

AN ILLUSTRATED DICTIONARY OF MEDICINE, BIOLOGY, AND ALLIED SCIENCES; including the pronunciation, accentuation, derivation and definition of the terms used in medicine, anatomy, surgery, etc., By GEO. M. GOULD, A. M., M. D., author of "The Student's Medical Dictionary," etc. Half morocco, 4to, pp. 1633. Philadelphia: P. BLAKISTON, SON & Co., 1894. (Price, \$10.00 net.)

To the general practitioner, particularly those who do not pretend to scan closely the current issues of standard medical journals, the multiplicity of new remedies, the bewildering array of terminations, together with the not inconsiderable number of really new words and new operations, the reading of reports, medical and surgical, must be rather unsatisfactory. As a result of extended investigation, diligent study and long continued laborious work on the part of the author and a corps of qualified assistants, we are favored with this admirable work which covers the whole field of medical science. No words of praise need be lavished upon this encyclopedic compilation, because its general character and appearance speak for it, and the writer is prepared to endorse it and commend its many virtues from frequent consultation and study.

The idea of using a dictionary for the purpose of study as well as consultation may seem odd to some, but when it is mentioned that we have here no less than one hundred and three tables, which include almost everything which a medical man wants to learn, the reason will be apparent. The introduction of these tables, arranged alphabetically throughout the text, is, to some extent, an innovation in dictionary-making, but they are, nevertheless, extremely interesting, and must prove specially valuable at the present time, when medical science appears to be on the eve of a radical revolution. Some of these tables may be noted, as follows: Alcohol, angles, arteries, bacteria, batteries, bones, breath sounds, cereals, cheese, doses, ducts, ethers, fevers, foods, ganglia, glands, localization, metric sys-

tem, milk analysis, muscles, nerves, nuclei, parasites, poisons, ptomaines, râles, reflexes, respiration, skin diseases, soaps, starches, sugars, sutures, theories, tumors, urinary sediments, weights and measures.

While the collation of tables is a prominent feature of the work, it is by no means the most important, except perhaps in the amount of labor involved. Many new operations have been introduced into surgery, new and more specific names have been given to diseases, brought about by the process of differentiation, and also a number of new words have been introduced. Indeed, so vast is this new departure, that it seems almost incredible, and as a consequence those who were fairly conversant with medical terms a decade ago will find themselves at a loss to comprehend much that is now appearing in the journals.

No one who has occasion to consult this work can fail to notice its very substantial character, the particular attention which has been given to details, the conciseness and completeness of the definitions and the particular fulness accorded to each important word or title; and yet it is compact, reliable, exact and modern in every respect. It will not be considered invidious to say that the publishers have outdone themselves in its mechanical execution; and the author is to be congratulated in having his book presented to the profession in such a handsome dress. Paper, printing, binding, illustrations, and finish, all combined give us a fitting illustration of the high standard attained in the book-makers' art in America.

### PUBLICATIONS RECEIVED.

On Lead Palsy in Children; with a report of three cases. By Dr. WHARTON SINKLER, of Philadelphia, Pa. Reprint, 1894.

The Treatment of Acro-paresthesia (Numbness of the Extremities). By Dr. WHARTON SINKLER, of Philadelphia, Pa. Reprint, 1894.

Skin Grafting for Malignancy of the Orbit. By Dr. FLAVEL B. TIFFANY, of Kansas City, Mo. Reprint, 1894.

The Therapeutic Uses of Sparteine. By Dr. DAVID CERNA, of Galveston, Texas. Reprint, 1894.

The Physiological Actions of Alcohol. By Dr. DAVID CERNA, of Galveston, Texas. Reprint, 1894.

Address in Medicine. By Dr. WILLIAM S. FOSTER, of Pittsburg, Pa. Reprint, 1894.

Chairman's Address. By Dr. JOSEPH EASTMAN, of Indianapolis, Indiana. Reprint, 1894.

Sleep. Sleeplessness and Hypnotics. By Dr. S. V. CLEVENGER, of Chicago. Reprint, 1894.

Salol in Impetigo Contagiosa. By Dr. J. ABBOTT CANTRELL, of Philadelphia. Reprint, 1894.

A Look at New Publications in May *Summary*, and Other Matters. By Dr. R. B. MCCALL, of Hamersville, Ohio. Reprint, 1894.

Hydrogen Dioxide ( $H_2O_2$ ). By Dr. L. D. KASTENBINE, of Louisville, Kentucky. Reprint, 1894.

Chronic Cervical Endometritis—Osmotic Treatment. By Dr. WALTER S. WELLS, of New York. Reprint, 1894.

Prevention and Treatment of Cholera: The Treatment of Typhoid Fever. By Dr. ELMER LEE, of Chicago. Reprint, 1894.

Functional Dyspepsia, So-called. By Dr. R. C. M. PAGE, of New York. Reprint, 1894.

Oxygen, as a Distinct Remedy for Disease, and a Life-Saving Agent in Extreme Cases. By Dr. A. W. CATLIN, of Brooklyn, N. Y. Reprint, 1894.

Grafting for the Cure of Epithelioma. By Dr. P. D. KEYSER, of Philadelphia. Reprint, 1894.

Tea and Its Effects. By Dr. JAMES WOOD, of Brooklyn, N. Y. Reprint, 1894.

Rules of the Philadelphia Dispensary, for the Medical Relief of the Poor. Annual Report for 1893. The Franklin Printing Co., Philadelphia.

Why Cow's Milk alone cannot be successfully used as a substitute for human milk. By Dr. GEORGE WILLIAM WINTERBURN, of New York. Reprint.

Nutrition as Especially Applied to the Treatment of Fever. By Dr. GEORGE WILLIAM WINTERBURN, of New York. Reprint.

Unguentine: The New Ideal Surgical Dressing. The Norwich Pharmacal Co., Norwich, N. Y.

A Treatise on Wine of Cod-liver Oil with Peptonate of Iron. FREDERICK STEARNS & Co., Detroit, Michigan.

Hemoferrum (Blood Iron): A Natural Proteid Compound of Iron. FREDERICK STEARNS & Co., Detroit, Michigan.

Abuse of Alcohol, Tobacco and Opium. By Dr. S. B. HOUTS. Reprint.

Sparteine Sulphate. By Dr. JOHN E. BACON, of Wellsboro, Pa. Reprint, 1894.

Fifth Annual Announcement of the Kansas Medical College, Topeka, Kansas. Session of 1894-95.

Twentieth Annual Meeting of the Mississippi Valley Medical Association. To be held at Hoi Springs, Arkansas, Nov. 20, 21, 22 and 23, 1894.



## Miscellany.

**MALAKIN.**—Through a typographical error a "Malakin" advertisement in recent Berlin medical journal was made to announce "Makalin" as a wonderful new remedy. The alert exchange editors utilized the item, and are now busy correcting their errors. There are many funny phases to the "new remedy era."

**CHOLERA REPORTS.**—From the daily press it is learned that cholera has been making sad havoc in several Russian cities and towns during the past summer. St. Petersburg has suffered severely. The disease has also made its appearance in a number of German cities, but so far as learned, but few deaths have occurred, and what is better, the disease has been kept under control. A case which unexpectedly appeared in Berlin apparently created no alarm, and so far as known, no other cases have developed from this one. The lateness of the season precludes the probability of cholera reaching those shores during the remaining mild months, but the experience gained from its presence in New York last year, was such that no serious alarm is, or will be felt by the intelligent members of the community.

**A MODERN HOTEL NEAR THE PYRAMIDS.**—In a recent issue of a Berlin medical journal appeared an attractive illustrated advertisement, noteworthy for various reasons. The illustration showed a group of substantial two and three-story houses, all joined and partly surrounded by a wall; back of these houses loomed up in massive grandeur two pyramids. The text announced that this hotel was situated eight miles out of Cairo, at the base of the pyramids; one of the finest hotels in the world, combining Arabian luxury with English comfort; electric lights throughout the house; fine baths and a marble swimming-pool; excellent livery, saddle-horses, vehicles of all kinds, etc.; lawn tennis and golf grounds; and teeming hunting grounds convenient for use. This aggregation of facilities and attractions ought to draw; but who would have thought of such accommodations so near the hallowed pyramids?

**MEDICAL DISTRIBUTION.**—According to a recent compilation (*Eclectic Medical Journal*) the number of physicians in the United States is 118,450, distributed as follows: Regular, 72,000; Homeopathic, 9,600; Eclectic, 10,200; Physio-Medical, 1,500, and 11,500 unclassified. The great State of Pennsylvania is credited with 6,400 regular, 684 Homeopathic, 384 Eclectics, with 75 Physio-Medicals, and 931 unclassified. When we consider the very large number of so-called "regular" physicians in the State, it seems strange that such a comparatively limited number attend the annual meetings of the State Society. It is a rare thing to find so many as three hundred registered outside of the town or city in which the annual meeting is held, say about five per cent. of the total number. Again should be mentioned the comparatively small number of Pennsylvania physicians who are members of the American Medical Association. The recently published record of members shows that but a few hundred of the whole six thousand are subscribers to the *Journal of the Association*. Here is a chance for missionary work on the part of the editor of the *Journal*.

**PETTENKOFER'S RESIGNATION.**—The report is current that the cause of the unpleasantness leading to the resignation of Professor Pettenkofer, of the University of Munich, dates back to the time when he had the temerity to swallow enough of Koch's cholera germs to destroy half the population of Berlin, although he suffered no serious inconvenience from the dangerous dose. The outcome of the affair has caused not a little indignation among the friends of the eminent Professor, but as the government controls the winning card, the probabilities are that we shall hear but little of the trouble on this side.

**STAINING TUBERCLE BACILLI.**—The following, copied from one of our exchanges, is said to be a quick method of staining the tubercle bacilli: Take the sputum of pulmonary consumption or one of the little tubercles found therein; thinly spread on cover-glass in air, pass thrice through spirit lamp flame to fix. Stain five minutes in Nelson's dye (fuchsin 1 part, .05 aqueous solution of carbolic acid 100 parts, alcohol 10 parts, mix and filter), wash in acid alcohol (hydrochloric acid 1 part, alcohol 10 parts) until decolorized, dry on hot glass slide and mount in warm pure balsam. The whole process can be easily completed in half an hour.

**FISH DIET AS A CAUSE OF TUBERCULOSIS.**—From the fact that whole families sometimes succumb in Iceland and in Canada to tubercular affections, it was at one time assumed that fish, upon which they chiefly subsisted, might be the cause. Professor Combemale, of the Lille Faculty of Medicine, however, has set this question at rest by showing that tuberculosis was not due to the fish, nor by infection through this means. Fish were inoculated with tubercle, compelled to live in water charged with tubercle, but it was impossible to render them tuberculous; and in some cases where inoculations were made into carp the tubercle was rarely demonstrable.

This information will be most gratifying to proprietors of summer resort hotels; the only thing now requisite to make their joy complete is, that it shall be shown that no danger of typhoid fever lurks in fish.

**JUMPING BEANS.**—Everybody is interested in the antics of those curious little jumping beans, which are just now displayed in so many shop windows, but few people know what makes them jump about in such a strange way. The motive power is really a round fat worm, resembling those seen in chestnuts. It has 16 little feet, which give it a pretty good purchase against the side of his home, so that he has no difficulty in moving about. The worms live in the beans from July or August until April or May, and do not seem to mind their captivity in the least. In fact, if a hole is made in the side of the shell, the worm will soon repair the damage by weaving a fine silky web over the aperture, upon the completion of which it will resume its nimbly ways. When removed from the shell, it will form another covering for itself in a few hours. The beans were introduced by a Chicago druggist, who cornered the market and expects to make a fortune out of them. They grow in Mexico, and their scientific name is *carpo capsia saltitans*.—*Phila. Record*.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. III.

NEW YORK, NOVEMBER 15th, 1894.

No. 5.

## Original Articles.

### NUCLEIN IN DIPHTHERIA—A CLINICAL DEMONSTRATION.

By J. MOUNT BLEYER, M.D.,

Fellow Royal Academy of Medicine and Surgery, Naples,  
Italy; Surgeon New York Throat and Nose  
Hospital, Surgeon New York West  
Side German Clinic, etc.

The service rendered by chemistry to therapeutics is not yet an exhausted subject. Although our immediate predecessors possessed a goodly medicinal treasury, it seems very insignificant when compared with our present armamentarium. Chemistry has loaded *materia medica* and pharmacology with wealth; it is the mother of new remedies, and we are proud of its aid. It has given us our anesthetics, antiseptics, hypnotics and antipyretics, groups of remedies which enable us to afford relief in many cases where our fore-fathers were quite helpless. To them, chloroform, ether, carbolic acid, iodoform creosote, chloral, the salicylates and antipyrine were all alike unknown. But here again, and more so than with respect to the alkaloids, there are shadows in the picture. Chemists and manufacturers add more and more to our store of remedies day by day, without stint or truce, without heeding the despairing cry of physicians already overstocked.

Taking a retrospective survey for a period of ten years, we find there was not a very long list of antiseptic and antipyretic remedies from which to select a decade ago; nor was it then imagined that the essential extracts of the organs of animals, the therapeutic value of which Professor Brown-Sequard and M. Con-

stantin Paul were the earliest to exploit, would eventually find a place in our *materia medica*; and cultures of microbes were then unknown. It was not foreseen that we should have to chronicle in 1894; the sale, not only of "Sequardine," but also of veritable bacterial products, such as tuberculin tuberculocidin, anti-tuberculin, antitoxine, and last, but not least, nuclein.

With the aid of chemistry, this onward march will continue, new substances being produced from time to time, analogous with the structure of well-known bodies. These substances will be submitted to the judgment of the medical profession in the hope that they may prove more useful than the preparations in present employ. Bacteriologists and experimental investigators will continue to search for toxins and antitoxines corresponding with each infectious disease and all characteristic lesions of each organ.

In a brief, clinical paper, it would be out of place to recapitulate the history of the development of nucleins, either early or that of more recent times, because the facts relating thereto have now become a part of medical history. Herein I simply jot down from my clinical note-book an account of the treatment of four cases of diphtheria in which nuclein solution (formula of Dr. John Aulde) was the sole medicament used, in order to show from my personal observation the proofs of its therapeutic value. That no mistake in diagnosis should be made in these cases regarding the specific character of the disease under treatment by confounding them with some similar form of throat affection, the membranes taken from these patients were all subjected to a critical bacteriological test. The report of the

bacteriologist showed that the Loeffler bacillus was present in the substances examined by him. This preliminary work is the only modern convincing proof regarding the differential diagnosis between true and false diphtheria, and is reliable. In accordance with these findings I was prepared to study in these undoubted cases of diphtheria the clinical effects of nuclein. That this substance gave a most brilliant and surprising account of itself cannot be gainsaid, and no physician could fail to accord it praise, the four cases recovering within periods varying from four to seven days.

This solution, extracted from the thyroid and thymus glands, is said to be absolutely free from albumen, and contains no excess of alkali, so that it may be used hypodermatically without danger from sloughing. The yeast-nuclein, prepared according to the formula of Professor Vaughan, I have not used, and therefore can give no special details in regard to that product. Nuclein solution is given in doses of one-third minim, standard solution, to adults, either in the form of tablets or by hypodermatic injection. The injections may be repeated without hesitation every three hours. In the cases under observation I repeated them—one-tenth minim—every two hours, the point selected being the abdominal parietes. To a measured quantity of the standard solution was added the requisite amount of sterilized distilled water, and doses of one-third minim were given two hours apart for the first day. During the first twenty-four hours there were no noticeable or peculiar symptoms, and as the remedy is said to be innocuous, the dosage must be left to the judgment of the attendant and the emergency or demands of the case.

In bringing my cases to the attention of my colleagues, I select from the four that one presenting the most typical picture of the disease. This particular case, which was the first to undergo treatment, considering the results produced, or apparently produced, by this new remedy, im-

pressed me so that I determined to make further investigations. The clinical notes run as follows:

On October 10, 1894, I was first called to see the little patient, a male, four years of age, who had been ill for two days and had passed a bad night. On the eleventh, the child was even more restless, and the color in the face rather darker in hue, the pulse quicker and the breathing more difficult. Membrane had appeared on both tonsils and covered the entire fauces. In the evening the respiration was very quick, and on the morning of the twelfth, the membrane was well formed, even extending over the soft palate and hanging down into the mouth. Some treatment had been carried out by the physician in charge—iron and potassium chlorate with a mouth spray prepared with boric acid,—although every physician knows from his experience that spraying of the throat is not the most efficacious method of cleansing it.

However, it soon became evident that something more would be necessary if we expected the patient to recover, for in spite of the treatment, now continued for several days, the patches kept on growing, and I resorted to nuclein solution. One-third of a minim of the standard solution, every three hours for the first day—then reduced to one-tenth minim, was injected into the abdominal tissue under strict antiseptic precautions, that is, a new syringe, previously sterilized in alcohol and three per cent. carbolic acid. The temperature at the time of the first injection was 103° F., and the pulse, 145. Within two hours, another dose was administered in the same manner, and after eight hours, the child seemed to be much improved. There was less fever, and the pulse was 110. The patient had a better night's rest, sleeping soundly for seven hours. On awakening the child took nourishment for the first time in three days without complaining, milk and brandy.

On the morning of October 13th, the pulse was down to one hundred, temperature, 99.4° F., and improvement was

noticeable hourly. The membrane loosened and came away in large quantity, being washed or douched out with a solution of hydrogen dioxide, seven-volume strength, to which was added a small quantity of sodium bicarbonate. A thorough washing was practical every two hours, and it was necessary, in order to remove the debris lying loose in the mouth and throat. On the third day of treatment only a few pieces of membrane were visible about the uvula, which was all cleared away by the following day.

October 14th, all signs of membrane had disappeared, the temperature was normal and the pulse good; there was no pain in the throat, the patient played in bed and ate and drank with ease. In this case there were eight injections, each one-third minim, and eight of each one-tenth minim, during the entire treatment, and from this date the child made a rapid recovery.

Attention should be called to the most noticeable features of the foregoing case occurring in the first twenty-four hours: 1) A fall of temperature amounting to three degrees; 2) loosening and discharge of the membrane; 3) no rise in the temperature when once reduced; 4) no unfavorable after-effects from the use of the remedy or the attack of the disease,—all going to show the power possessed by nuclein for checking complications, or holding in abeyance other disturbances.

Nuclein solution thus administered in the other three cases gave no unpleasant results, either constitutional or local, from its continued employment. The temperature made the same up and down sweeps in two cases the first day, but after that time resumed a down-grade course with the gradual subsidence of the other symptoms, all the cases recovering between the fourth and seventh day from the time of beginning the injections of nuclein solution. The ages of the three cases were 3, 5½, and 7 years respectively.

I find that this product administered hypodermatically carries with it no risk to the patient, as no poisonous symptoms of any kind whatsoever were observed.

460 Lexington Ave., New York.

## A TRIBUTE TO CELLULAR THERAPY.

By LOUIS LEWIS, M.D.

The treatment of some diseases and vitiated conditions of the blood and nervous system by the administration of elemental constituents of the animal body is certainly worthy of further investigation; for there is evidence that at least one of these agents has already achieved some remarkable results. The most prominent aspirant in the field—which happily illustrates the doctrine of cellular therapy—is a proteid or albuminoid, rich in phosphorus, called *nuclein*. It is composed of nucleinic acid in combination with a complex base, whose decomposition products yield one or more xanthines. This product is best obtained from the thyroid and thymus glands, though also found in the spleen, brain, blood-serum, yolk of egg, and yeast-cells.

Nuclein is supplied to the various tissues by certain leucocytes (the multi-nuclear white blood-corpuscles), and its rôle is to sustain or restore the normal activity of the protoplasm, and so support the vital functions; and when the natural supply is deficient, it may be introduced from without. It acts as a "defensive proteid," and by its germicidal, antiseptic and therapeutic properties, assists the system in combatting disease. Hematogen, so named and described by Bunge, is another promising candidate, being an organic compound rich in phosphorus, and probably a decomposition product of the atom constituting the protoplasm of cells. It renews the hemoglobin of the blood when deficient, as in chlorosis. It may be isolated from milk and from yolk of egg.

I have at present several patients under treatment with nuclein, and its beneficial action in two of the cases has been sufficiently pronounced to induce me to refer to them briefly here.

Case I.—Nervous prostration. L. J. is a male, 55 years of age, who had been

refused life insurance on account of periodic albuminuria. The albumin has made its appearance erratically for several years, though not to a large extent; but he had been persistently losing weight with corresponding decrease of muscular power. His heart, organically sound, has been functionally deranged, with an intermittent pulse and occasional attacks of syncope and angina pectoris. Otherwise, no pain of any kind, no tenderness over the kidneys, nor diminution of urine; no dyspepsia or constipation, but continued physical prostration and mental discouragement. This led to the use of alcoholic stimulants, with their inevitable after-crop of nervous phenomena, tremor, insomnia, etc. At the suggestion of my friend, Dr. Aulde, he is now taking nuclein solution in the form of tablets (freed from albumin and excess of alkali), min.  $\frac{48}{150}$  in each, two tablets being administered three times a day; and the patient has followed this course without other treatment for the period of one month. From the first, he realized an improvement in animal spirits and energy, so much so that he has discontinued the stimulants, feeling no further need for them; and the prostration has gradually decreased. The vertigo and angina are much less severe and less frequent; his heart-beat is more rhythmical. Albumin still comes and goes, but always in diminished quantity; and he has gained fully four pounds in the four weeks.

This patient says he feels that he is improving every day in every way, and his altered appearance warrants the assertion. The only drawback he has encountered is a peculiar dryness in the pharynx, similar to the condition induced by belladonna and atropine.

Case II.—Neurasthenia. The second case demonstrates the influence of nuclein upon the nervous system as well as on the blood. It is that of a female, single, 26 years of age. She has been a chronic invalid for over eight years, suffering from intractable nervous prostration (neu-

rasthenia), and weak, irritable heart, and she has been practically unfit to do anything but lie in bed or on a couch. Two of these years were passed in a special hospital, where she underwent the rest-cure and courses of massage and electricity. She was jaded and much discouraged; her digestion was miserable; she had frequent dyspnea, attacks of syncope and precordial pain, sleeplessness, obstinate constipation, requiring daily enemata; facial and dysmenorrheal neuralgia tormented her alternately (the cervix uteri had been dilated some years before). The patient was very thin, through feeble assimilation, though fairly plump in the face. The heart and lungs are in normal condition; there is no anemia and the kidneys do their work—only the urine has an excess of acid, but no albumin.

The patient has now been treated for one month with the tablets of nuclein solution (formula of Dr. John Aulde), one tablet five times a day. She has increased considerably in weight and flesh, and she can digest and enjoy foods that she could not tolerate for years before, although she has a little gastralgia. She suffers less from syncope and pain at the heart; the bowels have already acted without assistance several times; and she has walked to my office and back, a distance of ten squares, without assistance, and with only a little fatigue. It is right to state that this patient has also had Fowler's solution in conjunction with the nuclein, but she ascribes her general physical restoration and renewed courage to "*those little tablets*," which she declares, are "enchanted."

It appears to me that disturbances or alterations in the "nutritive balance" of the system may be rationally combatted by the administration of nuclein, an agent that is entirely innocuous, while it bids fair to fortify our equipment against the disastrous consequences of innutrition.

2011 Arch St., Philadelphia.

CAFFEINE has lately advanced fourfold in price, because the cheap tea and tea-dust from which it has been made are not obtainable.

## CELLULAR THERAPY.\*

By CHARLES P. KNAPP, M.Sc., M.D.

The present position of the medical profession as to therapeutics is one of skepticism or of sentimentalism, chill or fever. I believe this condition to be due to the want of a theory to link together our facts. It is a scientific procedure to have such a theory. Our surgical brethren had such a theory in Listerism; they developed it, and established a great and scientific surgery. I might mention as a directly opposite parallel, the doctrine of *similia similibus curantur*, a theory which has kept alive a sect in medicine for years.

In therapeutics we have clinical facts the result of empiricism, and scientific facts the result of scientific laboratory work; the latter establishing a scientific basis for the former clinical or empirical remedies, as well as adding new remedies to our armamentarium. The old therapeutics was the outcome of a microscopical view of disease; the new therapeutics will be the result of a macroscopical conception of disease.

Histology, through Malpighi, Leuwenhoek, Bichat and the immortal Schwann, has proved that all tissues have their origin in cells; pathology, through Mueller and the illustrious Virchow, with his epoch-marking book, "Cellular Pathology;" bacteriology, through Lamarck, Ehrenberg, Royer, Davaine, Pasteur and Koch; and physiological and pathological chemistry, through Horbackzewski Alt-house, Lee, Vaughan and Novy have proved that the whole science and art of medicine rests upon the ultimate cell, its functions and enemies, and that the advancement of therapeutics upon a rational basis must be linked inseparably with a more accurate knowledge of the life-history of the cell.

\* Written for the AMERICAN THERAPIST, and read before the Luzerne County (Pa.) Medical Society, October 3, 1894.

These remarks prepare the way for introducing a theory defined by Dr. John Aulde, of Philadelphia, as "Cellular Therapy," and briefly described\* by him as "A method in therapeutics of exhibiting properly selected medicaments, with a view to the restoration of cell-functions. It is in line with the conservative processes of Nature, as observed by clinical facts, observed in the treatment of diseased conditions. As cellular pathology is concerned in studying retrograde metamorphosis, so cellular therapy aims to apply scientifically, those remedies which investigation and experience have shown to possess curative properties, by restoring the cell to its normal function."

Glimpses of this theory may be found in medical authors of early date. The vital principle of Paracelsus and the alchemists; the researches of Haller and Jorg, from whom Hahnemann formulated his theory; the isopathy and organopathy of Lux and Hermann, and the dosimetry of Burggraefe. But these investigators nailed their theses to the door of a metaphysical rather than a scientific institute, and it is left to this age to demonstrate whatever of truth may be concealed in them.

The cell is the ultimate living principle demonstrable to human eyes and understanding. It eats, sleeps, reproduces and defends itself, subject to the changes wrought by heredity and environment, and from the latest researches—I quote from the address of Prof. Shaefer before the British Association for the Advancement of Science—"The protoplasm and nucleus form the living substance of the cell. There appears, however, to be yet another something which, although in point of size, is of very insignificant dimensions, yet in point of function may perhaps be looked upon as transcending in importance, in some respects both the protoplasm and nucleus—the "attraction particle." Martin Heidenhaim says, the

\* AMERICAN THERAPIST, Dec. 1892, p. 137.

*attraction particle* is "morphologically, physiologically and chemically a structure *sui generis*. It is almost as minute an object as it is possible to conceive. It initiates and directs those processes which result in the multiplication of the cell, and indirectly, therefore, it is concerned in directing the general growth of the individual and ultimately the propagation of the species." Therefore, from this contribution, we may assume, the cell has a brain and nervous system.

Prof. Sanderson at the same meeting said, "The process of lymphatic absorption, which before we regarded as dependent on purely mechanical causes, is in a great measure due to the specific energy of cells, and not in the various processes of secretion; the principal part is not, as we were inclined not many years ago to believe, attributable to liquid diffusion, but to the same energy." For the present purpose, however, it is sufficient to know that the cell is the seat of all the functions of the human body, both nutritive, secretory, excretory and correlative, and that in health and disease we are concerned with the cell, and not with the organism as a whole; that the vital processes take place in the cell, and that the equilibrium between anabolism and katabolism, repair and waste, may be taken as a definition of health; that certain physiological functions of the cell, chemotaxis, phagocytosis, cell-proliferation, and defensive proteids are the functions concerned in immunity, vital resistance, and the resistance to arrest and cure of disease. We already know that certain cells or certain groups of cells have certain powers of reaction and irritability, and it is reasonable to suppose this power belongs to all cells. Stimulus and changes in the vicinity and environment of the cells, produce alteration and changes in the cell; therefore, we conclude that the cell may be modified by medicaments, and assume this to be the basis of the physiological action of drugs, seeking not their mechanical effects, nor

effects upon pulse, respiration and temperature alone, but their action upon the cell, whether the action is demonstrable in the laboratory, or inferred from the clinical result.

I am aware that I anticipate a great deal when I attempt to classify remedies according to their effect upon the cell and their power of restoring cell function. It can only be an attempt, but will, I hope, lead to greater attention to the application of certain drugs and chemicals to diseased conditions, their rational dosage, and their therapeutic power as explained by the theory presented.

#### 1ST. MEDICAMENTS HAVING A BACTERICIDAL ACTION, OR ACTION UPON THE ENEMIES OF THE CELL.

Modern therapeutics has received her greatest impetus from bacteriology. The action of this class of remedies may be *direct* as in surgical procedures and intestinal antiseptics, including such substances as bismuth, salol and preparations which undergo chemical change in the alimentary canal, producing materials which have either a direct bactericidal action, or a retarding action upon their growth and propagation, by coming in contact with the micro-organisms; or *indirect*, by being absorbed into the circulation, and through that medium coming in contact with the germ, like methylene blue on *filaria sanguinis hominis*, and probably quinine (and phenocoll) on the *plasmodium malarie*, and the easily diffusible salicylates upon influenza bacillus, and pneumococcus.

#### 2D. MEDICAMENTS HAVING INFLUENCE UPON THE METABOLISM OF THE CELL.

Present knowledge will not allow me to classify these remedies, as I believe they will in a few years be classified, namely, into those affecting the anabolic action and the katabolic action of the cell. Oxygen as studied by Ehrlich will illustrate cell metabolism: "The vitality of the protoplasmic cell depends upon its affinity for oxygen; there is a sort of self-acting me-

chanism in the cell which, to a certain extent, regulates oxidation within it, yet this regulating arrangement, which might be likened to the appetite which prevents reasonable people from eating too much, does not seem to be enough, for we find a further one which actually prevents the oxygen from getting to the protoplasm. The damper which restrains combustion is the paraplasm, which surrounds the protoplasm. The paraplasm presents considerable resistance to the passage of oxygen through it. When the protoplasm is contracted to its utmost extent, it will form a globe, presenting a minimum surface to attract oxygen, and with a maximum thickness of paraplasm around it. When the protoplasm is extended it will present a maximum surface and minimum thickness of paraplasm around it." This is the phenomenon of internal respiration, and I believe may be taken as a type of cell behavior during the presence of drugs which affect their metabolism.

The remedies which belong to this class are generally protoplasmic poisons, against which the cell has not the self-regulating apparatus as against an excess of oxygen, and these substances when given in large doses produce fatty and other degenerative changes of the cells. This teaches us to employ them in minute doses, and according to their elective affinity for certain organs or tissues, which many possess—like phosphorus and cantharides upon the hepatic cells. Prof. Caldwell, College Physicians and Surgeons, Chicago, says (*AMERICAN THERAPIST*, August, 1893), that lethal doses of phosphorus by the mouth produce fatty degeneration of the hepatic cells around the hepatic lobule, while cantharides in lethal doses, given hypodermatically, affects the central as well as the peripheral area; which would teach us something in methods of medication, as well as dosage and elective affinity. He gives microphotographs of this cellular degeneration, which opens a field of investigation, by experimentation upon animals, of the cellular effects of

drugs in different dosage. Prof. Reichert, of the University of Pennsylvania, in his reports upon caffeine and strychnine shows beyond doubt that these drugs are cardiac paralyzers; yet we are daily using all the above mentioned substances for a different purpose than named. We give them, as Ringer says, so as "to avoid the bad results," or as Aulde says, in "a rational dosage," procuring what? their mild irritant action upon the cell, which stimulates its metabolism, and aids in restoring healthy function. And this is the rule and proper manner of exhibiting many remedies—potassium iodide, that universal stimulator and equalizer of katabolism; potassium bichromate—in small doses stimulating the cells of the mucous membrane of the lungs and bronchial apparatus, in its elimination, so as to be an ideal expectorant; cupric arsenite, with like action upon the cells of the small intestine; mercury biniodide upon the hepatic cells; arsenic and rhus toxicodendron upon the skin; cantharides and turpentine upon the genito-urinary apparatus; strychnine upon nerve cells, and in its elimination through the large intestine, upon its cells—hence its usefulness in constipation; and finally mercury upon the red blood-corpuscle.

The following conclusions upon the action of mercury in syphilis are those of Semmola and D'Amore (*International Congress Therapeutics*, Paris, Aug. 1889):

1. Constitutional progressive syphilis, when not treated with mercury, determines a diminution of hemoglobin, and of the red blood-corpuscles.

2. If mercury is administered to an animal, we obtain a rapid diminution of the hemoglobin and red blood-corpuscles.

3. When a syphilitic subject, who presents a diminution of red blood-capuscles and of hemoglobin, is submitted to mercurial treatment he will show from the very first day an augmentation both of the red blood-corpuscles and hemoglobin.

4. If the mercurial treatment is carried on further than necessary, that is to say,



when its specific curative action ends, and its toxic biologic effects begin, however slight the latter may be, there will be an immediate decrease of the red blood-corpuscles and of the hemoglobin.

5. A spectroscopic analysis, by the method of Henocque, gives results equal to those obtained by hemo-chromometry, and therefore every clinic should apply these scientific methods to therapeusis whenever the mercurial treatment is adopted, as well as during the use of all remedies which act upon the activity of exchange, since the real curative result of this action indisputably consists in an increase in the number of red blood-corpuscles, and in the quantity of hemoglobin.

I would call your attention to the clauses "specific curative action" and "all remedies which act upon the activity of exchange," as recognition by these prominent investigators of the action of remedies, according to the theory presented.

### 3D. MEDICAMENTS THAT STIMULATE THE DEFENSIVE ACTION OF THE CELL.

This class embraces the latest researches, and opens a field in therapeusis from which in the near future we shall reap the most practical results. It is from this class of remedies we are to secure immunity and cure in infectious diseases, and which will embrace the methods of Pasteur in hydrophobia; the methods of Koch in tuberculosis; of Koch and Behring in diphtheria; of Pfeiffer in cholera; and the methods of the physiological and pathological chemist with nucleins, proteids and albuminoids; the deductions from which now are, that the power to resist or withstand disease rests in the defensive action of the cell (defensive proteids), and that the rational treatment of infectious disease is to stimulate this action, or to supply the proteid.

The practical results under this head are shown in the treatment of typhoid fever by cold baths, the beneficial action of which is perhaps two-fold: stimulation of

the defensive action of the cell, and sedation of the correlative action. The same may be said of the action of guaiacol. The action of calcium sulphide in furunculosis, and in the zymotic diseases, especially scarlatina, I am led to assign to its stimulating the defensive action of the cell, and especially the cells of the glandular system.

If bacteriology gave us no other results than this, which I consider the true *vis medicatrix naturæ*, the defensive action of the cell, it has contributed greatly to the advance of scientific medicine.

Vaughan, of Ann Arbor, in a paper read before the Therapeutic Section of the first Pan-American Medical Congress, says, "These substances, nucleins, proteids and albuminoids, when introduced into the bodies of animals, in certain amounts and under certain conditions, have the property of stimulating the activity of certain organs in the animal, so that these organs produce and supply to the blood an antidote to the substances introduced; that the glands that manufacture these immunizing agents are the spleen, thyroid and bone-marrow, and that the antidotal substance is a nuclein. If nuclein therapy fails us we must strive to find agents which will stimulate the nuclein-forming glands. This is probably the explanation of the climatic treatment of tuberculosis." The isolation by Robin, of a phosphorized glycerin product, from organic extracts as recommended by Brown-Séquard, is a step in the direction of producing a nuclein stimulator, and the action of the various crude products produced from bacteria and their products, as well as the glandular extracts finds explanation in a nuclein stimulating power.

G. Sims Woodhead, in an address on bacteriology before the British Medical Association in 1892, gives some pertinent facts bearing upon this part of my subject: "In diphtheria, the bacillus is the primary infective agent. It produces a powerful enzyme, Martin's secondary infective agent; part of this enzyme, acting locally

on the coagulated fibrin on which the organism is subsisting, converts it into various soluble products known as albumoses; some of the enzyme being absorbed, continues the process of digestion in those tissues and organs with which it comes in contact, and is allowed to remain for any length of time in contact with the proteids, contained in the fluids of the body, especially, as Martin points out, in the spleen, through the spaces of which the blood passes extremely slow and remains in contact with the enzyme for some time, and the albumoses are broken down into much less complex chemical substances, the most important of which in diphtheria is the organic acid; in anthrax, an alkaloid or organic base, the former, the organic acid, being much less virulent than the albumose, the latter, the alkaloid in anthrax, exciting the far more powerful physiological action." "It is interesting to note," says the same writer, "how the definite changes set up by these poisons correspond to those set up by inorganic or organic poisons, such as phosphorus or antimony, and some of the other compounds which induce fatty degeneration through malnutrition, especially by interfering with oxygenation, or by increased stimulation of the protoplasm which, unable to obtain extra-cellular material to carry on its functions under increased stimulation, has to fall back, as it were, upon its own protoplasm, which is rapidly converted from proteid into fatty matter."

Under this head it will be well to sum up the present status of nuclein therapy, in which, in America, Prof. Vaughan and Dr. Aulde have done such good work.

Nuclein is a physiological remedy, and as such we must consult the rôle it plays daily in the economy. Wherever waste-products are to be handled, there nature supplies nuclein, and in that complex chemical and physiological work-shop, the alimentary canal, the antiseptic properties of nuclein constitute the balance-wheel of the digestive process; besides its

action upon the blood, it has a stimulant action upon the brain and nervous system, which accounts for its influence upon the aged and in chronic maladies. A wide field of usefulness is therefore open. Whatever assails the cell, it is useful *per se*, as a neutralizer of the enemy, and as a stimulator of defense. Whatever lowers the tone of the system, so that the correlation of forces is impaired and the defenses broken down, it is useful to repair the breach by direct chemical action or as a stimulant to normal work through the regular physiological processes.

It is a long standing popular notion that diseases carry with them their own cure, and there may be some ground for this idea. No doubt Koch had this in mind in bringing forward tuberculin for the arrest and cure of tuberculosis; and the same theory is now awaiting further clinical proof in the use of antitoxine inoculations in diphtheria, as put forward by Aronson, Koch and Behring. The failure of tuberculin will render us less hasty in accepting this antitoxine, and a physiological explanation of its action will be demanded. It seems to the writer that further research will place it among the substances discussed, as a powerful cell stimulant to the production of defensive proteids, rather than its containing any chemical or biologic entity in itself.

I believe the virtues of mercury, calcium sulphide and potassium chlorate in diphtheria reside in their stimulating the defensive action of the cell, and that the value of this new antitoxine will be upon the basis of its contained nuclein, or nuclein-stimulating power. It is rational to believe that the blood-serum of an immunized animal, which is the material chiefly used, contains from physiological deduction the very highest percentage of defensive material brought about by the gradual preparation of the animal; and upon the same line Pfeiffer makes his deductions in cholera, namely that recovery in cholera and subsequent immunity is due to the property the tissues acquire by

virtue of their struggle with the bacilli of secreting a substance specifically destructive to these germs, and that the same property is given to the tissues temporarily by the injection of serum from an immune animal.

4th: MEDICAMENTS HAVING A SEDATIVE EFFECT UPON THE CORRELATIVE ACTION OF THE CELLS.

Aconite, veratrum, acetanilide, opium and its alkaloids, I would place in this class, since they slow or stop the action of the human machine till repairs are made in special parts. This is accomplished through the intricate and as yet little understood action of the nervous system, but you can grasp my idea.

I have now placed before you as fair, practical, and scientific an outline as I could prepare of what I believe to be the foundation of a scientific and rational therapy. That many of the deductions of this paper future study and research will modify, I have no doubt. Listerism and the aseptic surgery of to-day are hardly akin in practice, but the bottom fact remains unchanged; the theory stimulated clinical investigation and physiological experimentation, and the results are apparent. This is what I ask for "cellular therapy, and I claim it to be the only scientific and rational basis of therapy ever offered.

Wyoming, Pa.

**NEW METHOD IN THE TREATMENT OF HYDROCELE.**

By AP. MORGAN VANCE, M. D.

Surgeon to Louisville City Hospital and to the Sts. Mary and Elizabeth Hospital; Consulting Surgeon to the Masonic Widows and Orphans Home and Infirmary; Surgeon to the Methodist Orphans Home; President Louisville Academy of Medicine, etc.

I have been led by the following clipping to make a few remarks concerning a method of treatment that I have employed for a number of years for the radical cure of hydrocele.

"A new treatment for hydrocele is pro-

posed by J. Neumann (*Wiener Medicinische Presse*, No. 45, 1893). It consists in the withdrawal of the fluid by means of a trocar and canula, leaving the latter in the hydrocele sac to act as a drain. A slightly compressing bandage is applied over a small thickness of cotton. Healing is said to occur in a few days. The canula is removed on the second or third day."

I believe that the method I have employed is better, much more comfortable to the patient, and will in my estimation prove more effective. I introduce a medium sized trocar from below upwards entirely through the hydrocele sac, transfixing it completely; following the withdrawal of the trocar I insert a fenestrated rubber tube through the canula, then the canula is withdrawn leaving the piece of rubber tube *in situ*, through which the hydrocele fluid is allowed to drain. For two or three days I irrigate this contracted sac with some irrigating fluid—dilute alcohol, sublimate solution, or simply water. At the end of that time I withdraw the tube partially, then the day following remove it.

It is not necessary in doing this operation to have general anesthesia, as after thoroughly cocainizing the parts of the trocar can readily be introduced with very little pain, and the patient suffers very little inconvenience from the presence of the soft rubber tube. I have operated eight times by this method, and have only failed to cure one case absolutely, and this case turned out to be a tuberculous testis, which was afterward removed. I recommend the procedure as being a very simple, safe and effective way of treating hydrocele, the length of time required being on an average about five days. Suppuration has not occurred in any of the cases I have treated by this method. It is certainly more effective than the injection of carbolic acid or iodine which is recommended by some writers, and much easier and simpler than the open incision, besides being just as good.

218 W. Chestnut St., Louisville, Ky.

## THE TREATMENT OF SUMMER COMPLAINT.\*

By PHILIP F. BARBOUR, M.D.,

Professor of Chemistry and Chief of Children's Clinic  
Hospital College of Medicine; Visiting Physician  
Louisville City Hospital; Vice President  
Louisville Clinical Society, etc.

The subject of my essay this evening is very trite, and the time of year unfavorable. But often-times it is of advantage to review one's experience when the different points are fresh in the memory, rather than postpone it until the character of the season shall make it appropriate.

The treatment of summer complaint has been one of the difficult problems of pediatrics, not because our therapeutic resources are futile, but because of the ignorance and carelessness of mothers. Every year hundreds of children are sacrificed, for even if they have enough vitality to withstand such a drain on the system during the summer, in the fall they are ready victims to broncho-pneumonia.

The liability of city children to develop summer complaint is well recognized. Prophylaxis demands their removal from the city before the advent of the hot weather. It has been demonstrated by Seibert that an average daily temperature of about 60° F. foretells a manifold increase of summer diarrhea.

Too often are the streets and alleys of our large cities lined in the summer with a green scum of stagnant water, scented here and there by decaying animal or vegetable matter. With heat, moisture and suitable food, it is no wonder that pathogenic germs multiply so rapidly. Add to this a poor quality of milk just turning sour, and we have all the conditions necessary to develop disease.

The importance of these factors in producing trouble cannot be over-estimated. There is a reaction taking place against

assuming that all diseases are bacterial in origin, and in intestinal derangements there is room for more than one theory, but it is beyond controversy that bacteria play a very important part in the etiology of diarrhea. It is unquestioned that their presence in the milk before it is taken pre-sages trouble, and likewise we may infer that their development in the intestine will produce derangement. The increasing knowledge of bacteriology and the theories growing out of it, have affected very largely our treatment of the diseases of the digestive tract. But we find that all bacteria are not pathogenic; in fact, some may be considered as necessary. For instance, the bacterium *lactis aërogenes* performs a duty in the intestine for which no secretion seems adequate, that is, the decomposition of the lactose into lactic acid instead of into glucose. The function of the bacteria *coli commune* is not so well understood. These are the principal bacteria found in the intestines of an infant on milk diet. With a varied diet there are many other bacteria found, which are harmless, even if not useful.

If the digestion is good and the functions of the digestive organs are properly performed, there will be no derangement if a few pathogenic germs find an entrance into the stomach or intestines. But otherwise the consequences are serious. It is not that the germs directly affect the intestinal mucous membrane, but they elaborate ptomaines and acids, which in turn act upon the secretory and absorptive cells of the intestine.

We have solved only a part of the problem, when we adopt the antiseptic treatment of summer complaint. Asepsis will help very much in preventing it. Of course, all milk for children in the summer time should be sterilized or pasteurized before being taken, and especial care should be taken when the child is sick. If we prevent the entrance of germs, we certainly aid Nature in her efforts at cure. If the attack is acute all food should be withheld for hours, and especially if there

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is vomiting. But usually when we see the case the child has been sick for several days, and the prominent symptom is the profuse diarrhea. We cannot then deprive the patient of food, as it is too weak. Our aim should be to give a suitable food and one easily and rapidly digestible. If the food is absorbed before it has descended very far in the intestine the germs, having nothing to feed on, will starve to death. For that reason the stomach should be carefully watched and made to do its proper work. The gastric juice is deficient both in quantity and quality, and should be aided by the administration of pepsin and hydrochloric acid. These children have a voracious appetite, and will overload the stomach if possible.

Prof. Vaughan has gone so far as to deprecate the use of antiseptic agents, with the exception of bismuth subnitrate, and depends almost entirely upon dietetic regulations. But the majority of practitioners place great faith in antiseptic medication. There is need of greater refinement in the use of such agents, for antiseptics are not without harm to infants. If the fermentative process initiates in the stomach, calomel and bismuth, or naphthalin, are recommended. Beta-naphthol would probably be better in the stomach than naphthalin, as it is less toxic and more germicidal, but it has to be given in capsule which prevents its use in children. Betol, or the salicylate of beta-naphthol, is less disagreeable and more active than the pure naphthol.

The salicylates and salol have the property of setting free in the intestines the salicylic acid, which is then absorbed and is eliminated by the kidneys. When the kidneys are affected, as in Bright's disease, this elimination may not be sufficiently rapid, and the consequent accumulation of the acid will produce toxic effects. As children rarely suffer from nephritis, except as a complication or sequela of diphtheria, or scarlatina, this may practically be disregarded in their medication.

When the antiseptics are to apply to the

bowels alone, salol with bismuth subnitrate will prove a very useful agent, to which may be added naphthalin. The French writers advise the use of benzonaphthol, a compound of benzoic acid with beta-naphthol, which is broken up in the intestine and has a high antiseptic equivalent. Bismuth salicylate has not come up to my expectations.

Bismuth subnitrate seems to be the drug upon which nearly all authorities have relied. It is classed as antiseptic, astringent and sedative. The antiseptic properties must be very weak, as it is so slowly decomposed, and bismuth is itself of very little germicidal power. Its antiseptic property is probably due to its lessening the secretions, etc., in the bowel, thus interfering with the nutrition of the germs. Its astringent property is also very slight, but it is peculiarly permanent in its effect upon the bowels, and the sedation is likewise persistent. This makes it an invaluable drug to combine with the more actively antiseptic ones. The chief objections to bismuth are that it interferes with the normal secretion of the intestine by its drying up properties, and children cannot take it for any length of time without vomiting.

The whole antiseptic treatment has one very serious drawback: it takes no account of the normal, not to say necessary, bacteria in the intestine. Of course all medicine is a choice of evils, but we may hope sometime to secure drugs which will be positive and specific in their action.

The trend of modern investigation is towards a fuller comprehension of Nature's method of treating disease. The discovery of the tubercle bacillus gave but a suspicion of the mystery of disease. We then thought it would be easy to cure disease, as we had found the cause. But further investigation only increased the complexity of the problem. We now are trying to ascertain Nature's method of dealing with germ infection. The researches of Prof. Vaughan on the antiseptic properties of blood-serum developed

the fact that nuclein, derived from the white blood-cells, was the important ingredient. There are some who claim, with Dr. Aulde, that the serum which accompanies every diarrhea is an effort on the part of Nature to apply this natural antiseptic to the destruction of the pathogenic germs. It has been advised to give nuclein itself. But instead of using any antiseptic drug, Dr. Aulde prefers to stimulate the cells of the intestine to do their normal work and thus produce antiseptic results, and at the same time facilitate digestion and absorption. This he accomplishes by the use of arsenite of copper. Copper arsenite is irritating to the glandular cells, but if given in small and frequently repeated doses it acts as a gentle stimulant. Arsenic is of undoubted influence upon the hepatic cells, increasing their functional activity. In that way it promotes the portal circulation. The tone of the stomach is thereby improved and the gastric secretion and digestion as well as absorption are markedly aided. The intestinal tract partakes of the improved circulation and nutrition, and thus the child's strength is built up and Nature assisted in the cure. Further than that, copper arsenite is supposed to stimulate the antiseptic secretions of the intestinal cells, thus fulfilling every desired therapeutic indication.

My experience with arsenite of copper during the past summer in clinical cases surpassed all my expectations. In every case it secured the desired effect. I know that others have not had so favorable an experience. It may have been due to the method of administration, and then there are doubtless many cases which it will fail to benefit. But if it succeeds in the class of cases in which I used it, it certainly should succeed where the child has the advantages of good food and good surroundings.

It is with the object of discussing its therapeutic indications and limitations that I have presented this subject to the Society this evening.

233 W. Chestnut St., Louisville, Ky.

## OPTIC NEURITIS, ITS DIAGNOSIS AND ETIOLOGY.

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Optic neuritis as seen by the ophthalmoscope is of two varieties, though the boundary between them is not always distinct. In one the inflammation is confined to the head of the nerve, the so-called papilla, hence is named papillitis. In the other it extends into the retina and is known as neuro-retinitis. In either case the subjective symptoms may be entirely absent for a long time. Neither pain nor photophobia are usual. Vision may be unaffected, or absolutely lost, with the ophthalmoscopic appearance almost the same. The loss of sight sometimes comes from the same central disease which has given rise to the neuritis, sometimes from the neuritis itself. It is important so far as possible to distinguish between these two causes.

According to Gowers,—in neuritis blindness is never sudden, in brain disease it is occasionally, though rarely so; entire loss of one-half the field of vision, with a corresponding limitation of the other half in each eye, indicates brain lesion; central scotoma is due either to disease of the macula with hemorrhage, or axial (retro-bulbar) neuritis; to some extent great disparity between the intra-ocular lesion and loss of sight, makes brain disease probable. Sight may be impaired from disease of the nerve itself, either by pressure upon, or by inflammation of the nerve fibres. Pressure may be exercised on them by effusion in the early stages of the disease, and should this fail, it may be re-absorbed by its organization into connective tissue at a later stage. Correspondingly, vision may be early impaired, then improve, then be again depressed. When due to pressure from organized inflammatory exudate, the loss is more serious and more likely to be lasting. The field of vis-

ion is sometimes concentrically narrowed, sometimes lacking in irregular sections. The color sense is often impaired.

**DIAGNOSIS.**—The diagnosis of optic neuritis must be made with the ophthalmoscope. It is not always easy. Experienced oculists may differ in occasional cases. Too much stress should not be laid on the color of the nerve head, for not only does this vary greatly in different persons, but a decided redness and congestion may be produced by eye strain, from hypermetropia, or astigmatism. Dr. W. F. Norris goes so far as to say that even well-defined neuritis may be so produced.

According to Gowers our diagnosis should be based first on the obscuration of the edge of the nerve; second, on the swelling; third, on the change of color. In most severe cases the outline of the nerve is entirely lost, and its location can only be determined by the convergence of the vessels; the nerve head is greatly swollen and marked by hemorrhagic spots or white plaques, the retinal vessels being here and there concealed. In the mildest cases there is a haziness of the edge of the nerve, perhaps only at one side, with increased capillarity and redness. The larger vessels are often unchanged for a considerable time.

**CAUSES.**—The causes of optic neuritis are, in the order of their frequency, as follows: First, tumors of the brain, including syphilitic and tuberculous masses. Neuritis in these cases is most often well-defined papillitis. It is sometimes, but much less frequently, a neuro-retinitis.

In an analysis of one hundred and seven cases of brain tumor, Edmunds and Lawford found optic neuritis in sixty-six per cent.; neither size, character nor location of the growth seem to have any effect on the inflammation of the nerve, except that tumors of the cerebellum are most likely to produce it. The neuritis may be an early or late symptom, and occasionally runs its course and disappears notwithstanding the continued

growth of the tumor—evidence, as Gowers states, against the theory that increased intra-cranial pressure is the cause of the inflammation.

According to H. C. Wood, lesions of the frontal lobe are least likely to cause changes in the optic nerves. Though nearly always both nerves are affected, inflammation may appear in one some time before it does in the other.

Even where the history of syphilis is certain, and there is every probability that it is responsible for the brain lesion, our prognosis must be much less favorable than in syphilis elsewhere. The following case illustrates this:

Mr. A., æt. thirty-one, of spare build and rather feeble vitality, consulted his physician on account of blindness already of about two weeks' duration in the right eye, attended with great pain referred chiefly to the head back of the same eye. There were no evidences of tuberculosis, nor any family history of it. Examination of the urine gave a negative result. He stated that he had had the initial sore of syphilis about fourteen months previously, that this had been followed by the usual throat and skin manifestations, all of which disappeared under treatment. I saw him in consultation, and found vision in the right eye reduced to perception of light, and the papilla subject to the most intense inflammation, the so-called choked-disc in extreme degree. At that time there was no neuritis in the left eye, and vision in it was good. About a week later the optic nerve in it also became involved. Vertigo was among the earlier symptoms, and delirium later. There was no fever except in the last week of life, then not over 100° F. The pulse was quick and feeble; towards the last there were several convulsions accompanied with vomiting.

Notwithstanding the most active anti-syphilitic and supportive treatment this patient died about four weeks after first consulting his physician, and about six weeks after he observed the first symptoms, viz.: headache and blindness in the

right eye. Cerebral syphilis rarely comes so soon as fourteen months after the initial lesion; it is usually much later. The quick pulse would seem to lessen the probability of tumor, but the condition of the nerve was one much more likely to be produced by that than by meningitis.

According to Suckling, tumors of the brain are most often tubercular, next syphilitic, and next glioma.

Gowers states: "Tuberculous tumors of the brain frequently cease to trouble the patient or his optic nerves, and the cessation is permanent." The following case of tuberculous deposit is the more interesting from the operation, and later *post mortem*. I saw the patient in October, 1893, and found choked-disc of the most pronounced type, both eyes being affected. The surgeon in attendance has kindly supplied me with these notes:

"The patient, a lady *æt.* fifty-six, was first seen in August, 1892, suffering with intense pain in the left side of the head and face, and at times in the neck. Hearing lost on the left side, and impaired on the right, so that communications with her had to be made in writing. Vision also much impaired and steadily failing. Mental faculties somewhat weakened, so that the patient appeared dazed, and her thoughts came slowly. Some loss of motion of left side of the body, and several epileptic convulsions affecting chiefly the same area, but with the head drawn down and to the right side, and the eyes turned upward and outward under the upper lid. The symptoms steadily increased and tumor of the brain on the opposite side was suspected. (All the more strongly from result of ophthalmoscopic examination.)

"Operation was performed in the early winter of 1892. A large piece of bone over the parietal prominence was removed, and the membranes so protruded as to suggest cystic tumor. An hypodermic needle was used, but no fluid obtained. The dura was incised, and the brain herniated and strangulated, becoming quite black. A long canula was passed in the direction of the lateral ventricle and a clear fluid, about two and one-half ounces, was withdrawn. The brain settled down, and the dura was sutured without trouble, showing that the tension had been over-

come. Subsequently the pain was less, but ataxic aphasia continued.

"She improved for a time, but the scalp gradually became fuller and fuller at the site of the operation, showing re-accumulation of fluid. Aspiration was practiced with no benefit. She died two months after the operation, with all her old symptoms returned.

"**POST MORTEM.**—Nothing special on the dura, but there were small tubercles in the pia mater; there was also quite a deposit in the fourth ventricle and in the floor of the left, showing that it was a case of chronic tuberculous hydrocephalus, with symptoms of tumor of the brain."

(CAUSES) 2d. *Meningitis*, either simple or tuberculous. Here the inflammation is more likely to be a low neuro-retinitis than a well-defined papillitis. Noyes states that eighty per cent. of tuberculous meningitis cause lesion of the optic nerve, but congestion and swelling of the nerve head is much less frequent. Otitis media is a not infrequent cause of optic neuritis. It may be by producing a meningitis, or it may be by abscess of the brain. In obscure mastoid symptoms, it is well to use the ophthalmoscope.

3d. **INJURIES TO THE SKULL.**—As an illustration I may cite the following: A little boy sliding down the banisters fell on his head. He was unconscious for about an hour, and there was slight flow of blood from his left ear. When consciousness returned he complained somewhat of vertigo and deafness on the affected side. A few days later he found the sight of that eye was bad. At this time I saw him in consultation. There was a slight fracture at the upper posterior border of the membrana tympani; the retinal vessels of the eye of that side were enlarged, and the edge of the nerve a little hazy. The eye ultimately became quite well, and there are no results of the injury, except some loss of hearing in the affected ear.

4th. **ABSCESS OF THE BRAIN.**—Neuritis here is not so common. Noyes states that abscess of the brain may cause papillitis; abscess of the cerebellum seldom does. Loring says that neuritis is rarely a symptom of abscess. Gowers, on the contrary,



states that it is found in many cases, though often absent. Strümpell does not mention it as a symptom of brain abscess.

5th. IN HYDROCEPHALUS, SOFTENING OF THE BRAIN, AND APOPLEXY, optic neuritis is occasionally seen. Authors differ as to the frequency of its occurrence in these diseases.

6th. ALBUMINURIA.—Here the neuritis is usually attended with retinitis so characteristic of the disease, as almost of itself to be sufficient to establish the diagnosis. But it must be remembered that intra-ocular complications exist only in from ten to twenty-five per cent. of cases of Bright's disease, and in these complications inflammation is much more frequent in the retina than in the nerve. Instances in which the diagnosis is first made with the ophthalmoscope are so common as hardly to call for report of further cases, but the following may be cited as illustrating not only this point, but also a far-advanced neuro-retinitis with perfect vision:

Mrs. A., æt. thirty-seven, was referred to me by her physician on account of frequent supra-orbital headaches, April 20th, 1893. An occasional dizziness, and rather frequent urination were the only other symptoms which could be elicited by the closest questioning. Her vision was even above the accepted standard for perfect sight in each eye, but in the left there was found intense optic neuritis with retinal hemorrhages; in the right a mild neuritis with characteristic white spots about the macula. On the sixteenth of the following June convulsions took place, and on the nineteenth the patient died in coma, diagnosis of Bright's disease having meanwhile been established by analysis and the microscope, and treatment directed accordingly.

7th. SYPHILIS may give rise to neuritis by attacking the nerve itself, as well as by cerebral disease. Though Gowers seems to question this, we have abundant authority for the statement in Noyes, Meyer, Loring, Berry and other ophthalmologists, and it agrees with my own experience.

Berry is probably correct in stating that the prognosis is here much better than when the neuritis is secondary to deeper-seated mischief.

Quite recently I have had under my care a gentleman about fifty years old, with intense neuritis of the right optic nerve, together with many other symptoms of active syphilis, but entirely without any cerebral manifestations. His vision for five or six weeks was limited to a bare perception of light, but under specific treatment it is now very good.

8th. GENERAL DISTURBANCES, such as CHLOROSIS, AMENORRHEA, etc., occasionally give rise to optic neuritis, but nearly always of a mild type and of much more favorable prognosis than that due to other causes.

9th. ORBITAL DISEASE is a quite frequent cause, and should be carefully looked after, especially when the inflammation is unilateral. Erysipelas, usually by producing cellulitis, occasionally by thrombosis of an orbital vein, is not an infrequent source of blindness in this way. Rheumatism may produce unilateral neuritis, and rarely it seems to affect both nerves.

10th. SPINAL DISEASE.—Acute myelitis has been known to cause optic neuritis several times. In locomotor ataxia, as is well-known, the optic nerve undergoes atrophy in many cases, but without inflammation. It is true that Loring is of the opinion that a very mild neuritis precedes the atrophy even here, but this view is not generally held, and certainly where we find well-marked papillitis we have no ground for referring it to locomotor ataxia.

#### DISCUSSION.

Dr. T. C. EVANS: I have very little to say, except to commend the most excellent paper to which we have had the pleasure of listening. There is one point to which I want to call attention in connection with the case I exhibited, *i.e.*: we may have in neuritis or retinitis following brain tumor, spots that cannot be differentiated from albuminuric spots, though

they are rare. Under ordinary circumstances I would have diagnosed the case one of albuminuric retinitis from the ophthalmoscopic examination made; except for the long-continued convulsions, running since the first of the year—over eight months—which led me to believe that there might be something else besides albuminuria. I simply want to call attention to the fact that the spots are not quite pathognomonic albuminuric spots, yet they are located around the macula, between the outer half of the disc and the macula, the latter sometimes having a scaly look.

Dr. W. L. RODMAN: Dr. Dabney has certainly read a most excellent paper, and I feel that my knowledge of the subject has been very much increased by the reading of it. There is one point which I think the Doctor makes clear, and that is that tuberculous and syphilitic affections of the brain constitute by far the largest majority of so-called brain tumors. True, tumors of the brain are exceedingly rare, and while many such cases are reported, and, of course, do act as tumors, producing pressure, etc., nine-tenths of them, I am satisfied, are really tuberculous or syphilitic. While glioma occurs oftener than any other real tumor of the brain, still, this is infrequent, and it usually begins in the optic nerve rather than the brain itself. That point cannot be too strongly insisted upon. Neoplasms of the brain are of rare occurrence; most of the so-called growths of the brain producing pressure, etc., are not tumors, but are syphilitic or tuberculous processes.

Dr. S. G. DABNEY: In regard to Dr. Rodman's last comments: They simply corroborate the statement quoted from Suckling's work on nervous diseases, that brain tumors in order of frequency are first, tubercular; second, syphilitic; third, glioma.

I was considerably surprised in looking up the literature of this subject to find the statement made by Gowers, which I also quoted, that "*tuberculous tumors of the brain frequently cease to trouble the patient*

*or his optic nerves, and the cessation is permanent.*" I think we ought to carefully bear in mind in this connection the various other causes of optic neuritis, so much less grave in character and so much more favorable in prognosis. For instance, last spring I saw in consultation with another oculist of this city, a young girl in whom there was a very marked family history of tuberculosis, and yet taking into consideration her age—thirteen or fourteen years—and her anemic condition, with delayed menstruation, we were inclined to attribute the double optic neuritis which she had to other causes than tuberculosis—to interference with menstrual functions and chlorosis—and the outcome has justified us in that opinion; she has entirely recovered from it.

Optic neuritis from orbital disease is, I think, sometimes overlooked. I believe we are too apt not to examine the orbit carefully.

Dr. I. N. BLOOM: Referring to Dr. Dabney's statement concerning syphilitic affection of the brain fourteen months after the initial leison—this is not very unusual. The exceptions, in fact, are so numerous as to be quite common. Cases have been reported six months afterward where the so-called tertiary manifestations have appeared.

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## Recent Medicaments.

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ANTIPLONIN is used in Italy by ophthalmologists; it is the designation for sodium-polyborate (*Ph. Zig.*), and is probably prepared by melting together boric acid and of baborate sodium.

CHRYSAROBIN OINTMENT will adhere to adjacent clothing—a shortcoming which often causes inflammation; a substitute is suggested by D. James (*Ph. Centralh.*), as follows: Dissolve 1 part chrysarobin in 7 parts linseed oil; this "liniment" can be applied with a camel-hair brush, and thus the unpleasant feature of ointment application is avoided.

SUBLIMO-PHENOL is the name applied in France to a mixture of mercury chloride and mercury phenolate. It is prepared (*Ph. Zlg.*) by mixing equal molecules of potass. phenol. and mercury chloride in aqueous solution; a precipitate of changing tints—first red, then yellow, and finally white—ensues; after washing, this precipitate is treated with boiling alcohol, from which a crystalline, colorless body is evolved, which melts and decomposes at  $210^{\circ}\text{C}$ . The crystals are readily soluble in liquified phenol and in aqueous or alcoholic boiling phenol solutions. Additional facts have not yet come to hand; it is probably an antiseptic of excessive toxicity.

LYSIDIN has been introduced lately as a uric acid solvent. It purports to be analogous to piperazine, and the introduction is made on parallel arguments. Clinical reports are not vouchsafed, but the chemical formula being nearly the same as that of piperazine the same actions are presumed and claimed. It is stated that the dose for regular treatment will be 2 to 5 grammes per day; this is rather large dosage by comparison. The product has an odor like unto the characteristic smell of mice, which is hardly an inducement for patients to swallow the dose.

DIURETIN, the double compound of sodium theobromine and sodium salicylate, has been generally found superior in marked diuretic action and safer in application than caffeine. It is administered in 15 grain doses, from 45 to 90 grains per day; being readily soluble it can be dispensed in palatable mixtures. Some of the best known endorsers of this product are Gram, Schroeder, Hoffmann, Demme, Kress and Geissler. The continued and increasing use of this product indicates that its therapeutic effect is satisfactory; and now that the cost of pure caffeine has again advanced so enormously it is quite likely that diuretin will receive largely increased attention.

ALUMINUM compounds, with surpassing astringent and antiseptic properties, are now multiplying rapidly; the latest introduced are *Boral*, aluminum boro-tartrate, and *Cutal*, Boro-tannate. Boral is soluble in water; cutal is not, but is made soluble by the addition of tartaric acid to the desired solution. Cutal has already found employment in erysipelas, and in tartrated solution for gonorrhea, etc.

TRAUMATOL is an iodoform substitute, prepared by mixing iodide of potassium solution and cresol-water emulsion; the mixture yields a precipitate, odorless and of a red-violet color, which is washed and dried. What difference there is between this new applicant and *Cresol iodide*, analogous to aristol, does not appear. To substitute aristol seems just now the absorbing ambition of all witless new remedy imitators.

AS A RULE chemical nomenclature is international, and especially utility names applied to the polysyllabic new remedies are carefully made uniform by the proprietors to ensure full benefit of all local popularities and all literature. But variations are becoming frequent, and great and dangerous confusion is bound to ensue. Familiar examples are: 1). *Antipyrin*, original; designated "analgesine" in France (by which name several proprietary compounds are known in America), "phenazone" in England, and by a half-dozen othersynonyms in other localities. 2). *Analgen*, original; other mixtures having been irresponsibly introduced by the same name, the proprietors have now re-christened the product (orthoethoxy-anamobenzoylamido-chinolin) *Quinalgen*, and the confusion is thereby increased. 3). *Phenaceline* has heretofore escaped these variations, but we note an increased use of the synonym "acetphenetidine," and lately some German writers refer to it as *Phenin*, while Italian authors specify *Fenina*. It requires unremitting attention and effort to keep complete a reference index of these names.

# THE AMERICAN THERAPIST.

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CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
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## Editorial.

### THE SPREAD OF DIPHTHERIA.

A quarter of a century ago it was a difficult matter to trace the spread of disease, and in many instances it was charged to the visitations of Providence. So long as this conception prevailed, the medical profession slept. At times, of course, its lethargy was interrupted by a few who wished to investigate, to discover the causes if possible, in the hope that they might be able thereby to eradicate and prevent evils which made such dire havoc among the ranks of their confiding patrons; but like all other efforts looking towards reform, the laity objected, intimating that such work was in the nature of an intrusion upon their liberties. The reformers were referred to as fanatics seeking notoriety, and it is too true that many of the easy going medical practitioners "laid low" for their more enthusiastic brethren. With increasing intelligence on the part of the public, along with the concurrent advances in medical science, this condition of affairs is gradually disappearing, so that in the near future the pathology of contagion will form quite as important an inquiry as the pathology of disease itself.

The foregoing remarks are prompted by reason of the lax conditions which now prevail in respect to the spread of one of the most fatal maladies, namely, diphtheria. How does it happen that it is an almost constant factor in the mortuary statistics in all large cities? When the cholera made its appearance on these shores recently, every effort was made by state and municipal authorities to prevent its spread, and to determine if possible the exact origin in each individual case. What do the records show in regard to diphtheria? Comparatively nothing, either in the way of prophylaxis or in tracing the origin of the numerous cases. Statistics would indicate that diphtheria, being a "native" disease, our people are content to suffer from its ravages, although in the case of cholera, which is a foreign visitant, every possible precaution is taken to prevent it from obtaining a foothold in this country.

According to an observing municipal authority, there are two prime causes, not overlooked, but winked at, which contribute to the diffusion of the diphtheritic poison. This is a strikingly limited number of causes, when we take into consideration the large number of cases appearing on the records, and it is believed, if these two causes were removed, the prevalence of this death-dealing malady might be materially limited, if not stamped out altogether. The first, and most serious of these factors, according to reports of those engaged as disinfectors, is the physicians themselves; and the second is through the medium of the public schools. A physician attending upon a case of diphtheria *thinks* he takes the usual precautions to prevent his carrying the disease from house to house, but he fails, and the result is: a new case of diphtheria. A pupil at school is detained at home for a day or two, and the teacher, wishing to learn the cause of his detention, sends one or two direct from the school to get information as to the cause of absence. These children are invited

into the house, told to sit down until some member of the family is consulted; they come back to the crowded school-room with the reply that the missing child has diphtheria!—and if they do not take the disease themselves, they will probably communicate it to others.

### NUCLEIN MEDICATION IN DIPHTHERIA.

A majority of our subscribers who have been close readers of the *AMERICAN THERAPIST* for the past year have doubtless formed some opinion as to the therapeutic value of nuclein solutions in the treatment of various diseased conditions, but as some of these reports have given this new remedy such flattering endorsements, the probabilities are that many have decided to adopt the position of the agnostic. It is not that they do not believe, but that they believe it doubtful, since no remedy in recent times has promised so much, and it is doubtful if any remedy discovered by human genius could accomplish the results that have been claimed. Now, with all due respect to the agnostics, it should be borne in mind that there is a marked difference between conservatism and bigotry; indeed, there is an interminable gulf lying between the two landmarks, and the evidence is rapidly accumulating which will convince, beyond the shadow of doubt, those conservatives who are also agnostics, while the bigoted minority remain upon their island.

In the present issue of the this journal will be found a number of interesting and suggestive articles bearing either directly or indirectly upon the subject of nuclein medication, and the present seems an auspicious moment to direct special attention to these clinical evidences in its favor. The editor feels that these reports are, in a measure, a personal endorsement of the teachings which he has so persistently put before the profession, and he takes this opportunity of thanking his colleagues for their attention, their cooperation and active support.

The elaborate and thoughtful communication of Dr. BACON, of Wyoming, Pa., should be read as a preliminary to those which follow. In it will be found the germ of the conception which brought forth nuclein medication. The practical contribution of Dr. BARBOUR, of Louisville, upon the treatment of Summer Diarrhea in Children, referring incidentally to the subject of nuclein, should follow the study of Dr. BACON. In the article by Dr. LEWIS, of Philadelphia, will be found some cogent arguments in the shape of clinical reports relating to the therapeutic value of nuclein medication. In the case of "Neurasthenia" reported, it does seem incredible that a patient suffering for a period of eight years, and constantly an invalid, should rise up and walk at the bidding of nuclein, and yet the facts are here in cold type. Dr. DICKSON's case of Cancer of the Breast, likewise shows the potentiality of nuclein in re-establishing a normal metabolism, probably through its influence upon leucocytosis.

The contributions referred to, while suggestive, are not altogether convincing. Some of the results will be regarded as coincidences, and the so-called "practical" man will be satisfied to read the paper of Dr. BACON in ten years, after he has succeeded in demonstrating the facts thus brought out, when he will cogitate, and say, 'That was a pretty good idea of Dr. BACON. It is strange that I should not have noticed that before. However, in the future, I will try to exhibit such medicines as will affect cellular activity, because experience has convinced me that certain drugs do have peculiar effects upon the various organs and tissues.' Then come the reflections as to what "might have been," had these instructions been inculcated into his early teachings and put into practice during his entire medical career—but it would be unprofitable and impolitic to enter into details.

When we turn to the paper of Dr. BLEYER, of New York, we have presented to us a most attractive picture, a veritable

bow of promise, an indisputable evidence, the evidence of the senses, that at last, in the final decade of the nineteenth century, a cure has been found for diphtheria, and the dread malady robbed of its terrors. Here is a child, four years old, two days sick with diphtheria, the membrane having been submitted to a bacteriological test. For a period of two days more, the classical treatment, iron and potassium chlorate, is followed, and the symptoms refuse to yield, the child becoming hourly worse. On the morning of the fifth day of the disease, nuclein solution hypodermically—only one-third of a minim—is used for the first time; medication is repeated at intervals of two hours, and at the expiration of eight hours the child seems much better. At the end of twenty-four hours, the membrane has nearly all cleared away, peeling off so rapidly that the mouth has to be washed out from time to time to keep it free from the accumulations; the temperature has fallen to almost normal and the pulse has been reduced from 145 to 100; the little patient has slept for seven hours during the night, and seems to be wonderfully improved; in one more day, the pulse-rate and temperature are reduced to normal, and no further medication is necessary.

The effects of the nuclein solution in this case might also be regarded as a coincidence, were it not that we have three more cases treated in like manner, with equally gratifying results. Dr. BLEYER is to be congratulated on being the first to report a case of this kind with the accompanying bacteriological proofs. His report confirms the experience of the writer, who has used the remedy in frequent instances where all the symptoms pointed to true diphtheria, although the diagnosis had not been confirmed by bacterial investigation. The facts, therefore, as to the therapeutic virtues of nuclein medication in diphtheria are now fully established, and it remains to be seen what influence it will have upon the mortality rates.

### THE RHEUMATIC TONSIL.

The rheumatic tonsil! Aye, aye, how well we know him. Whence he cometh, no one knoweth, and whither he goeth, no man can tell—or woman either, for that matter. Like a thief in the night, he pounces upon his unwary victim, and lo, he is cast down and suffereth much and is mad that business must be postponed for the unsavory gargle, and the sweating medicines and antipyretics, thrust with such unseemly haste into the innermost depths of his precious lunch-basket. But for the unsightly cosmetic effects and the inartistic make-up, the patient would much prefer to have the time-honored and fire-tested salt-pork rind, alternated with hot mush poultices, with flax-seed tea for a beverage. Instead, he gets acetanilide to decompose his blood, paralyze his heart and produce collapse; or his complicated interior is burned out with poisonous salicylates made from coal-tar, so that in either case it takes a week to get over the effects of the disease and about four more to recover from the effects of medication. But then, that is medication for business, and as long as people are so foolish, speaking advisedly, it is but right and proper that they should suffer, not only from the disease, but also from the medication.

About ten years ago the writer was indiscreet enough to publish a formula adapted to the treatment of quinsy, made up of a lot of interesting ingredients, pot. chlor., ammon. tinct. guaiac, tinct. cinch. comp., mel. desp., aquae, etc., q. s. ad, which went the rounds of the medical journals for a year or two; but since then he has ceased to "practice" on throats of that kind because he thinks he "knows how."

Dozens of cases are readily recalled that formerly were subjected to the usual treatment regularly spring and autumn, with one or two attacks during the winter, where now they have none at all. Attacks of quinsy can be avoided, and if

those persons with the rheumatic tonsil would take "directions," instead of waiting to get medicine, they might save expense, escape pain, live longer and die happier. Old-fashioned quinsy (tonsillitis, amygdalitis), when associated with rheumatism, is usually dependent upon a disordered condition of the stomach, and appears to be superinduced by exposure to cold. From a clinical standpoint, it seems as if Nature was attempting to rid the system of some poisonous substance through the medium of the tonsil, which becomes inflamed; there is an elevation of the temperature and accelerated pulse-rate, and not infrequently the entire nervous system is involved. Delirium is an indication that the poison has involved the nerve-centres, and, of course, is always a formidable complication; but if we bear in mind the defective metabolism which is responsible for the attack, the difficulties in the way of mitigating the symptoms in a serious case are not insuperable.

When a patient begins to complain of recurrent attacks of quinsy, special attention should be directed to the condition of the stomach; not that this organ is the real cause of the attack, but because it is, in legal parlance, *particeps criminis*, and when properly solicited, will divulge certain secrets in relation to the condition of the liver. Delayed digestion, with fermentation of food and eructations of gas, or pyrosis, nausea, vomiting, or evidences of dilatation cannot fail to impress upon the mind of the physician that there is an obstruction to the circulation, resulting in more or less congestion. A temporary congestion means an increased blood-supply to the organ, but if the liver persists in its refusal to relieve it, there is nothing for it to do but "strike." During all the time this controversy is going on, poisons are constantly taken up, not only from the stomach itself, but also from the intestinal tract, and as a result, the usual emunctories, the skin, kidneys and pulmonary apparatus, are called upon to per-

form extra work. It is therefore important that ordinary food stuffs should be withheld. An emetic may be of temporary service; a purgative mixture is more popular; but too many physicians fly directly to the use of antipyretics. A very popular plan with the profession, as well as the laity, consists in the use of a blue pill, followed the next morning by a dose of magnesia; but this does not prevent the recurring attacks. The only thing which will effectually arrest these attacks, is the correction of the diet, and especially the avoidance of bad combinations at meals; and when an attack is threatened, no food, except that of the blandest character, should be permitted under any circumstances. A word to the wise is sufficient.

#### MEDICO-POLITICAL ORGANIZATIONS.

When we have medical societies, local, State and National, medical clubs and medical organizations for purely social advantages and medical jurisprudence societies, it may seem a trifle strange that we have no medico-political organizations. While it is true that all the organizations named may exercise an influence of a political nature, it is also true that none of them pretend to do that systematically, and yet there are medical editors and medical men who are not editors, urging Congress to enact a law requiring a Public Health officer in the President's cabinet. To the writer this looks like beginning at the wrong end of the argument. No unprejudiced medical man of ordinary intelligence doubts the advisability of such an arrangement; but until the medical profession show that they possess power, influence and understand political wire-pulling, the members of Congress will give them absolutely nothing. Let the profession, regardless of "isms" or "pathies," unite in forming an organization with officers whose duties shall be properly defined; let each man go to the polls, or do political work in

other legitimate directions, for the purpose of aiding in the election of only such men as are in favor of the project, and it will be but a few years when the medical profession will hold, as they are justly entitled to hold, the balance of power in this country. There is scarcely a single voter throughout the land who could not be reached and converted by this means, and it is a duty, which the physicians owe to themselves and to the whole country, to insist upon this as right and just, because they hold in their hands the welfare of the Nation.

#### PROSPECTIVE SUBSCRIBERS.

Sample copies of this issue of the AMERICAN THERAPIST will be mailed to many physicians who have not seen the journal before. To those who take up the journal for the first time, and whose eyes note this paragraph, we beg to say: THE AMERICAN THERAPIST is an exponent of what the American general practitioner is contributing to the progress of that branch of medical science which concerns the applications of drugs; it is original, practical and independent. Each issue contains an average of six original articles by well-known teachers and authors; editorials that have direct relation to the general contents and consistently carry along the idea of progress; a quota of Therapeutic Memoranda or Current Literature extracts; a record of New Remedies; Book Notices, and miscellaneous matters of interest. All this matter is presented in pleasing and interesting form, not of ephemeral character, but permanently valuable. In short, we give a post-graduate course in Therapeutics, and this ought to attract readers and students.

We earnestly solicit your subscriptions.

PERSONAL.—DR. J. LINDSAY PORTEOUS, of Yonkers, N. Y., writes to the editor, requesting that an apology be offered the Louisville gentleman who wrote him recently asking for further information in regard to the animal extracts. The letter was lost or mislaid on his return from abroad; but if the gentleman will write to him again, he will be pleased to answer his inquiries.

## Correspondence.

### NUCLEIN FOR CANCER OF THE BREAST.

TO THE EDITOR:

SIR: I have used nuclein tablets for cancer of the breast in the hemorrhagic stage. It has been accompanied by dizziness, slight pain in the heart region, some oppression in the chest, and poor appetite; also, there are new tubercles appearing in succession at the inner side of the tumor. All the symptoms were promptly relieved by the tablets. The first day, four tablets were taken; the second day, five were taken, when the appetite increased rather beyond the power of digestion, and an extra lunch caused some bloating and flux of blood to the tubercles. This condition was relieved later by lead, opium and aconite compresses, kept wet for a half hour, and the tablets were then continued three daily, when the tubercles seemed less prominent and were not so blue.

About two weeks later, the patient found three tablets a day a little too stimulating; she thought they increased the flux of blood to the breast. As she had felt the desire for stimulants all along, and has been repeatedly cautioned against the overdose of even hot drinks, and against strong foods, it is very probable that she will be able to take two tablets a day in divided doses. She has asked for heart tonics, stomachics, etc., on account of the debilitated condition of the nervous system, and she has taken with benefit, wine of coca with celery (N. F.), syrup of wild cherry, brandy and cherry, brandy and glycerin. All the symptoms for which these were given were removed by nuclein, and did not return when she omitted to take it for four days.

To-day, Oct. 29, 1894, the tumor is not so tense as it has been. I think we may recognize in nuclein great therapeutic power, and like many other drugs, the dosage will have a range so as to be adapted to each region and special condition of the patient.

J. P. DICKSON, M.D.

Franklin, Iowa.



## Therapeutic Memoranda.

**PILOCARPINE FOR URTICARIA.**—Abrahams (*Med. Record, Phila. Polyclinic*) believes that in urticaria this is the drug *par excellence*. Before using it, complicating lesions should be removed, then the drug should be pushed to the point of tolerance. In the adult, he administers it hypodermatically in dose of one-sixth to one-half a grain repeated every day or every other day. He administers it to children by the mouth, and for a child a year old the dose is one-twentieth to one-eighth of a grain every evening at bed-time. The dose is to be increased gradually, and the physician should remain fifteen or twenty minutes after its administration.

**DIGITALIS IN PNEUMONIA.**—Foster, in his address in medicine before the Pennsylvania State Medical Society, said (*Phila. Polyclinic*), "In pneumonia, however, we have the field where digitalis is the remedy *par excellence*. That recoveries from this disease will and do occur in greater numbers when it is treated by large and persistent dosage of digitalis, than occur without its use, seems to be the growing belief in medical practice to-day. In conjunction with strychnine, given in physiologic doses, digitalis is administered until the pulse comes down to 90 a minute. If it can be kept there, as a rule recovery will ensue in a shorter time than by the use of other methods of treatment."

**TREATMENT OF DIABETES.**—Prof. Cohen (*Phila. Polyclinic*), following Sir B. W. Richardson, gives a mixture of this kind:

Codeine phosphate.....	gr. ii
Alcohol.....	fl. 3 iv
Dilute phosphoric acid.....	fl. 3 ii
Glycerin .....	fl. 3 vi
Solution of hydrogen dioxide (10 volume), enough to make ..	fl. 3 iii

Dose.—Two teaspoonfuls in 3 ounces of water.

He also urges as essential points in the management of the case: Keep the patients warm and protected; cold is their greatest enemy. Examine the urine for organic

acids and keep the blood alkaline. In the matter of diet, be strict enough to diminish polyuria and glycosuria, and, if possible, to secure their disappearance, provided you can, at the same time, keep the patient comfortable; but, under any circumstances, make the patient comfortable.

**THE RELATIVE VALUATION OF FOODS FOR INFANTS.**—The editor of *Gaillard's Medical Journal* says: The best food for an infant at the nursing age is its own (healthy) mother's breast milk; this not being obtainable, milk from a healthy wet nurse is the next choice; if both are unobtainable diluted sterilized milk for young infants, pasteurized for older infants (used exclusively up to a certain age or period) are next in rank; milk boiled just before feeding stands fourth in the estimation of the profession. That cow's milk should not be used *exclusively* after a certain age, and that raw milk is entirely unfit for infant's food, are not disputed by any intelligent physician. Indeed, its unfitness even for adult food is now happily attaining recognition.

**DISEASED TONSILS AND SUPPURATION.**—For a long time the function of the tonsils was not understood, and even at the present time, there are differences of opinion. The rheumatic tonsil has been referred to elsewhere in this number, and a recent authority (Witxel) has claimed that in acute rheumatism, the tonsil may be the point of entrance of the disease. Although possible, it is quite doubtful, and on this question the writer must be classed as an agnostic. It is also said that Kraske and Jordan have attributed certain cases of osteo-myelitis to the absorption of poisons through the tonsils.

There can, however, be no doubt about the dangers arising from a diseased condition of the tonsils, not an active disease, but rather the sequelæ of disease. It is not at all uncommon to find persons in fairly good health, who have previously suffered from recurrent attacks of tonsillitis, where these bodies are riddled with

little crypts, and we can readily see how these cavities would distribute their contents from day to day. And when it is added that bacteriological investigations have demonstrated the presence of staphylococci and streptococci in tonsillar crypts, the causes leading to infection in quite a large number of cases may frequently be readily traced—not only in those whose tonsils are thus affected, but such persons can easily become the means of spreading various forms of disease.

In this connection may be reproduced the opinions of a German author (BUSCHKE, *Deutsche Zeit. f. Chir.*, 1894), as follows:

1. That the tonsils may be the point of entrance for pyogenic micro-organisms, and that it is not necessary that ulceration or diphtheria should prepare the way for lodgment and multiplication of germs.

2. On the basis of experimental investigations, it is probable that the tonsils play an important rôle as the means of entrance for pus-producing micro-organisms, and certainly a more important one than either the respiratory or alimentary tracts. Very probably, the bacteria do not pass the tonsils without causing slight trouble which, in the majority of cases, is unnoticed. The care of the mouth and throat is not only of local hygienic importance, but is also of value for the prevention of general disease.

**TREATMENT OF DIPHTHERIA WITH ANTITOXINE.**—Dr. Arnold W. Catlin, of Brooklyn, N. Y., has just published a brief account of his experience with antitoxine in the treatment of a case of true diphtheria (*Med. News*, Nov. 10, 1894). The child, a male, nine years of age, was seen for the first time, Sunday morning, Oct. 7, 1894, when the temperature was 102° F., the pulse, 120, and a large amount of exudate was discovered, filling the fauces and obstructing the breathing. A bacteriological test having shown the case to be one of true diphtheria, at seven in the evening an injection of the antitoxine (Aronson's *Heil-serum*) was administered, five grams at once, between the shoulder blades. No reaction occurred, and on the

following morning, the child appeared to be no better. During the day the temperature varied from 100.5 to 102°, and the pulse was 120 and feeble. The child refused stimulants by the mouth. At the expiration of thirty-six hours, however, or on Tuesday morning, there was a change for the better, although no further injection had been given. "The temperature had fallen, the pulse was stronger, the tongue cleaner, and the exudate was loosening at the edges, while the surrounding parts looked bright and healthy. The improvement continued during the day. There was a free flow of saliva and mucous from the throat, but no membrane exfoliated. It appeared thinner and was evidently disappearing."

Although the record in this case does not say so in so many words, we are led to infer that the treatment first inaugurated, namely, mercuric bichloride, gr.  $\frac{1}{4}$ , and tincture of the chloride of iron, 5 minims, every three hours, was continued independent of the antitoxine injection.

On the Thursday following, the temperature touched normal for the first time, the pulse-rate was 86, the throat nearly clear and the nasal passages much freer. The subjective condition of the patient was excellent; he was hungry and wanted solid food, and there was no albumin in the urine, although a bacteriological test showed that the Loeffler bacillus was still present.

On Saturday, this patient was, to all intents and purposes, perfectly well, but the bacilli were still present, and the patient was therefore quarantined and remained in bed. Finally, at the end of twenty-one days, the bacilli were absent, but they returned with an intercurrent attack of follicular tonsillitis, and did not permanently disappear until the twenty-ninth day of treatment. It should be mentioned that albumin appeared but once, on the eighth day of treatment, and then only a trace.

The foregoing note is recorded for two obvious reasons. In the first place, it shows the probable value of the antitoxine, provided no other medication was continued, and only one injection was administered; but it is scarcely probable that Dr. Catlin should give but one dose of the remedy, and depend on that alone. In the second place, it shows how dangerous these cases may become to a community, but especially to schools, churches and other assemblies.

## Book Notices.

**A SYSTEM OF LEGAL MEDICINE.** By ALLAN McLANE HAMILTON, M. D., Consulting Physician to the Insane Asylums of New York City, etc., and LAWRENCE GODKIN, Esq., of the New York Bar. Illustrated. Vol. I. Cloth, 8vo., pp. 657. New York: E. B. Treat, 1894. (Price, \$5.50.)

The appearance of Dr. Hamilton's work, at a time when so much doubt has been expressed as to the value of expert testimony in the courts, is timely. For many years this accomplished author has been making headway but slowly in the development of the subject of medical jurisprudence, but it is only within the past few years that the medical profession as a body has begun to realize its importance, and this, we regret to say, appears to have been brought about by the very full reports of cases of this character which have been published from time to time in the daily press. The questions thus brought before the courts have been discussed by the laity, and as most of the intelligent classes have some physician whom they consult socially, the same questions are asked the physician.

In the present work the author is assisted by some of the best medical and legal talent of the country, as will be apparent from the following outline: Lawrence Godkin, Esq., of the New York bar, writes the introduction; Dr. A. T. Bristow, of Brooklyn, contributes a paper on medico-legal inspections and post-mortem examinations; death in its medico-legal aspects, is treated of by Dr. Francis A. Harris, of Boston; the section on blood and other stains, is written by Professor J. F. Babcock; the identity of the living, is considered by the author, and with the exception of the section entitled, the medical jurisprudence of life insurance, by Dr. Brandreth Symonds, is perhaps the most attractive portion of the whole work. Poisoning by alkaloids and inorganic substances is treated of by Professor Walter S.

Haines, of Chicago, and the toxicologic importance of ptomaines and other putrefactive products is considered by Professor Vaughan, of the University of Michigan. R. C. McMurtrie, Esq., of Philadelphia, who has long been recognized as a high authority in medical jurisprudence, contributes a strong article entitled, the obligation of the insured and the insurer, which must prove especially interesting to such medical men as are interested in the subject of life insurance examinations.

Not only are the authors to be congratulated on having produced a most acceptable and timely work on a subject of absorbing and increasing interest, but the publisher deserves praise for having brought out this work in such attractive form. A number of instructive plates are inserted to illustrate the text, and in addition, eighty-three woodcuts and half tone engravings. No physician can well afford to be without the advantages which this work affords, and where he is not able to provide himself with a personal copy, every physician should endeavor to borrow this volume from his brother practitioner, as the time spent in its study will be richly rewarded.

**AN INTERNATIONAL SYSTEM OF ELECTRO-THERAPEUTICS:** For students, general practitioners and specialists. By HORATIO R. BIGELOW, M.D., and thirty-eight associate editors. Illustrated. Cloth, 8vo, pp. 1160. Philadelphia: The F. A. Davis Co., 1894. (Price, \$6 00.)

The importance of electricity in therapeutics is now fully recognized, but the application of this agent is still comparatively limited, owing to the comparatively small percentage of physicians who pretend to use it in general practice. This difficulty doubtless arises from the fact that there is a lack of knowledge as to the methods of use, or the special features of the large number of diseases to which it is adapted. In future, however, neither of these reasons can be assigned, because we have here in compact form a general

review of the entire subject, direct from the authors who have been so enthusiastic in developing its use. Electro-physics is by Professor Duff, of Purdue University, La Fayette, Indiana; animal electricity, by Professor Mills, of McGill University, Montreal, Canada; static electricity and magnetism, by Henry McClure, of Cromer, England; faradic or induced current, electro-magnetism, electro-massage and instruments, by Professor Engelmann, of St. Louis; Dr. J. Mount Bleyer, of New York, contributes the section upon galvanism; electro-diagnosis is by Dr. W. F. Robinson, of Albany, N. Y.; but it is not necessary to reproduce the list of contributors entire. Some of them may be mentioned as follows: Dr. Frederick Peterson, of New York; Dr. Larat, of Paris; Dr. A. D. Rockwell, of New York; Dr. G. Betton Massey, of Philadelphia; Dr. Augustin H. Goelet, of New York; Dr. A. Laphorn Smith, of Montreal, Canada.

A cursory glance at the contents of this composite literary production shows that it embraces all the latest tenets and theories, considered either from the scientific or practical standpoint, the special information or elucidation of the different topics being assigned to one particularly qualified by experience and study. This work, therefore, may be accepted as a true exposition of the science of electro-therapeutics at the present time, and although improvements will be effected from time to time, it must be regarded for many years as a standard work upon this much vexed subject. Notwithstanding the great size of the work, it is not unwieldy, and when the character and extent of its contents are taken into account, the price is remarkably cheap.

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TREATISE ON APPENDICITIS. By GEORGE R. FOWLER, M.D. Illustrated. Cloth, 8 vo., pp. 190. Philadelphia: J. B. Lippincott Co., 1894.

The present work is a revised and corrected reprint of a series of articles published during the past year under the title,

"Observations upon Appendicitis," and embraces a history of about two hundred cases coming under the care of the author, either in hospital or private practice. Dr. Fowler has long been recognized as an authority upon all surgical matters, and is, withal, a careful and painstaking student, hence his experience will be studied with more than usual interest by the members of the profession, medical and surgical alike.

Turning to the chapter relating to the treatment of appendicitis (p. 134), we take the liberty of quoting therefrom some very sensible and timely remarks, as follows: "As soon as the diagnosis of progressive appendicitis is assured, the abdominal cavity should be opened and the appendix removed. If opium has been injudiciously administered, and the progressive character of the case is doubtful, it is better to err upon the side of safety and remove the appendix at once. \* \* \* To operate too early may be to operate unnecessarily, but this is always preferable to operating too late and hence unsuccessfully. \* \* \* A case demanding operation inside of twenty-four hours from the commencement of the attack is exceptional; but a case which is not practically well at that time should be made the subject of operative interference."

The reference to the injudicious use of opium is enthusiastically endorsed, but Dr. Fowler's last statement, namely, that all cases of suspected appendicitis not well at the end of twenty-four hours should be made the subject of operative inference, is not endorsed. The experience of the writer is sufficient to warrant him in denying the advisability of such operative procedure so early in the case, and no doubt, the experience of hundreds of others in general practice will confirm this opinion. Still, that is not sufficient for the surgeon engaged in consultation practice to a large extent to require him to modify his views, because they may be correct, although this results from the fact that he does not see many of the ordinary

cases where suspicion attaches to the symptoms until the condition of the patient becomes alarming. Only a few weeks ago a general practitioner related to the writer an account of his treatment of a case which had been pronounced appendicitis by a prominent New York consultant, where recovery took place without any untoward results from very simple treatment during a supposed second attack.

**A MANUAL OF HUMAN PHYSIOLOGY**, Prepared with special reference to students of medicine. By JOSEPH H. RAYMOND, A.M., M.D., Professor of Physiology and Hygiene, Long Island College Hospital, etc. Illustrated. Cloth, 12mo., pp. 382. Philadelphia, W. B. Saunders, 1894. (Price, \$1.25 net.)

In the work before us the author has endeavored to present only the main facts and principles of human physiology which are of importance as a foundation for obtaining a sound knowledge of the healing art, and a careful examination of its pages furnishes the most convincing proof that the object aimed at has been well accomplished. There are two methods of teaching physiology, as well as other branches of medical science—the one being considered sufficient to enable the student to graduate, the other attempting to supply the seeker after knowledge with such mental pabulum as will enable him to extend his investigations in later years, and we congratulate the author on the wisdom shown in adopting the latter course. From the beginning, the practical nature of the instructions given cannot be overlooked, and with a series of such instructive aids, the future practitioners of medicine must be well grounded when the diploma is granted.

It is to be regretted, however, that our author has shown his lack of familiarity with one of the most recent investigations, namely, the function of the white blood-corpuscles. He says (p. 142), "But little is known of the function of the white corpuscles of the blood, except that (they)

are concerned in the process of coagulation. As already stated, it is doubtful if they have anything to do with the formation of the red corpuscles." In the paragraph just preceding that quoted, we are told, "White corpuscles contain myosin, serum globulin, glycogen, lecithin, cholesterolin, nuclein, salts of sodium, potassium, calcium and magnesium. Besides these ingredients, they contain a zymogen which produces fibrin-ferment." No doubt, a later edition will correct this mis-information. Consultation is rendered easy by a very complete index; the book is printed on excellent paper, and the illustrations are all that could be desired.

**THE POCKET ANATOMIST.** By C. HENRI LEONARD, A.M., M.D., Prof. of Gynæcology Detroit College of Medicine. Leather, 300 pages, 103 illustrations, postpaid \$1.00. The Illustrated Medical Journal Co., Publishers, Detroit, Mich.

The 18th edition of this popular anatomy is now before us; it is printed upon thin paper and bound in flexible leather so as to be specially handy for the pocket. The illustrations are photo-engraved from the English edition of Gray's Anatomy, so are exact as to their details. It briefly describes each Artery, Vein, Nerve, Muscle and Bone, besides the several Special Organs of the body. It contains more illustrations than any of the other small anatomies.

#### PUBLICATIONS RECEIVED.

**Travaux D'Électrothérapie Gynécologique.** Dr. G. APOSTOLI. Vol. I., pp. 717. Paris: Société d'Éditions Scientifique, 1894.

**Total Extirpation of the Uterus by a New Method.** By ALBERT H. TUTTLE, M.D. Reprint, 1894.

**Zur Lehre von der Pathogenese der Gicht;** von Dr. F. LEVISON, Kopenhagen. Sonder-Abdruck aus der "Zeitschrift für Klinische Medicin." 1894.

**The Use of Traction in the Treatment of Joint Diseases.** By S. L. McCURDY, M.D., Pittsburg, Pa. Reprint, 1894.

**Old and Neglected Deformities Following Infantile Spinal Paralysis.** Same author.

**ONE HUNDRED YEARS OF BUSINESS LIFE, 1794-1894.**—A century of honorable and prosperous business life is unusual and noteworthy, and Messrs. W. H. Schieffelin & Co., the well-known wholesale druggists of New York, who have just finished this record, have fittingly commemorated the achievement in the form of a souvenir book, handsomely printed and illustrated with woodcuts and steel-plate. Commencing contemporaneously with the organized Government of the United States, the history of this firm, as entertainingly narrated in the book, graphically portrays the coincident progress of commercial and municipal interests of New York. As a souvenir it is a very creditable piece of work, out of the usual run, and a proud memento of the occasion.

# The American Therapist.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### *NOTES ON DIPHTHERIA, INCLUDING SERUM THERAPY.*

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For some weeks past we have had to contend with a rather severe epidemic of diphtheria in this city, which has given some of us ample opportunity to form an estimate of various modes of treatment, including that by nuclein and antitoxine.

Case I.—The first case which came under my observation and care was that of a colored girl, aged seven years. Her temperature was  $101^{\circ}$  F., pulse 108. The whole surface of the fauces was covered with membrane. There was no cough and no difficulty in breathing, but considerable difficulty in swallowing. I ordered the throat to be painted with Reed & Carnrick's sulpho-calcine every four hours, and gave her tincture of muriate of iron with chlorate of potash, also every four hours. The following day the membrane on the soft palate had curled up round the edge to a great extent, and the pain of swallowing was much diminished. A laxative was given, as the iron seemed to have caused constipation. The pulse went down to 100, but temperature remained the same. On the third day a large portion of membrane became detached, leaving a healthy mucous membrane beneath. On the fourth day the temperature was normal, and the membrane had disappeared from every part, but the tonsils and uvula. There was no albumin in the urine. On the fifth day neither uvula nor tonsils showed any signs

of the disease, and from this date the child seemed perfectly well.

On many occasions of late years I have had similar results from sulpho-calcine, but the smell and taste are so intensely disagreeable, it is with difficulty a child can be persuaded to allow it to be applied. From the severity of the subsequent cases, none of which had nearly so much membrane, I am inclined to believe that above was not a case of true diphtheria.

Case II.—On the 3d of November I was called to see M. L., aged eight and a half years. There was a small gray patch on each tonsil, but very little congestion. A bacteriological examination showed true diphtheria bacilli. I ordered tincture of muriate of iron, 15 minim doses every three hours; I sprayed the throat with a solution of corrosive sublimate (1:5000) every two hours, and painted fauces every four hours with carbolic acid and glycerin.

A consultation being requested, I asked Dr. Winters, of New York, to see the patient with me. He advised thirty drops of muriate of iron and thirty drops of glycerin to be taken internally every half hour, and a spray of a saturated solution of boracic acid every hour. Nourishment consisting of brandy, milk, and Wyeth's fluid beef was given frequently. The temperature up to this time had not reached  $100^{\circ}$  F.; pulse 120, respiration 24 per minute. The patches did not seem to disappear, but rather increased; and by the 9th the nostrils showed membrane, which obstructed the nasal breathing. On the 10th the nostrils were well washed out with salt and water by means of a Davidson syringe. After this the breathing was quite easy through the nostrils. On the 11th the breathing became more laryngeal,

and although not very bad, intubation, as a precautionary measure, was performed. The glands all around sub-maxillary region now swelled up rapidly, and the patient died on the 13th. During the last two days the aëration of the blood was deficient, and oxygen was constantly administered. Death seemed to have been due to paralysis of the heart. There was albuminuria during the last two days, but no further rise of temperature.

**Case III.**—On the 16th of November the sister of the last patient, aged  $2\frac{1}{2}$  years, was seized with persistent vomiting, which was very difficult to control, and which perhaps was due to the iron which had been given her as a preventative. On the 17th a small membrane was seen on the uvula and one on the left tonsil, with a good deal of congestion all over fauces. A bacteriological examination revealed quantities of bacilli of a diphtheritic nature. I ordered spray of boracic acid, milk, brandy, and beef juice, also tablet-triturate of nuclein,  $\frac{1}{3}$  of a minim, one every three hours. The temperature before beginning the treatment was  $102^{\circ}$  F., respiration 26, pulse 140 per minute. On the 18th the child seemed much better; the membrane was off the uvula, the temperature  $99\frac{1}{4}^{\circ}$  F., respiration 24 per minute, pulse 120. On the 19th the patch had almost left the tonsil, and the child could swallow seemingly without pain. On the evening of this day the submaxillary region suddenly began to swell; the skin got marbly-white with bluish spots. From this time all food was refused, and the child died at 11 o'clock on the morning of the 20th. There was no albumin in the urine during any part of the illness. No doubt the nuclein had some positive action on the membrane, but it did not seem strong enough to cope with the poison.

**Case IV.**—On the 22d of November M. S., cook in same family, complained of sore throat. On examination one patch of membrane was seen on left tonsil and one on back of pharynx. In this case a bacteriological examination showed quite a large number of diphtheria bacilli.

Treatment consisted of painting with iron and giving 20 drop doses of nuclein solution, prepared by Parke, Davis & Co. according to Dr. Vaughan's prescription, every two hours. This patient went on improving daily and all traces of the disease had gone by the 28th, as proved by the bacteriological examination. There was no albumin in the urine, and the temperature did not at any time rise above  $99\frac{1}{4}^{\circ}$  F.

**Case V.**—On the 22nd, the same date as the last patient was seized, a little boy, A. L.,  $4\frac{1}{2}$  years complained of sore throat. On examination a membrane was seen over both tonsils, uvula and part of soft palate. Temperature  $101^{\circ}$  F., pulse 130 per minute, respiration 22. Spray of corrosive sublimate (1—7000) every two hours, throat swabbed with perchloride of iron, and 20 drop doses nuclein (Parke, Davis & Co.) every two hours. On the 25th, the membrane had greatly disappeared; temperature  $100^{\circ}$  F., pulse 108. No albumin in urine, but thick, pink sediment. On evening of this day the glands of the throat began to swell, the breathing and cough which now came for the first time were croupy, and the patient became pale. No obstruction to breathing. On the 26th he seemed much worse; was in a semi-stupor. At 12.30 P. M., I injected, at the earnest request of the parents, 5 ccm., No. I Behring's Antitoxine; the pulse at the time was 144 per minute, and very weak; respiration 27, temperature  $99\frac{1}{4}^{\circ}$ . At 1.10 P. M., pulse had fallen to 110; at 1.40 P. M. to 104, and much stronger. At 2 P. M. respiration, 16 per minute, pulse 100 and strong, temperature  $99\frac{3}{4}^{\circ}$ . At 5 P. M., I injected 5 ccm. antitoxine; shortly after this the patient became comatose and died at 6.30 P. M., without evidently any suffering.

This, of course, was not by any means a fair test of the virtues of antitoxine, as the child was moribund almost when it was administered. No doubt that, according to the pulse, it acted as a stimulant, and probably had it been procured sooner the

case might have been quoted as one of the cures of antitoxine.

**Case VI.**—On the 29th, the father of these children said he had had a sore throat for some days which he attributed to cold. There was no appearance of a membrane, but the fauces were red and swollen. A culture was taken, and showed many bacilli. On the 30th, there was a membrane on left tonsil. On Dec. 1st, the membrane had spread and all the soft palate was of a dark purple hue. At 4.30, same day, I injected 15 ccm. of antitoxine, prepared at the New York Pasteur Institute Laboratory. The temperature at the time was  $97\frac{1}{2}$ , pulse 50 per minute and very weak, with considerable pain on swallowing. Urine free from albumin, and there was a general feeling of languor. On December 2nd, sixteen hours after injection, I found the following change: Membrane had entirely disappeared, the fauces were red, but not in any part purple; pulse 76 and strong; no difficulty in swallowing; appetite good and a decided feeling of relief. I injected 10 ccm.

On the morning of the 3rd, the throat was perfectly natural in appearance, and the patient declared himself quite well. A culture was taken on the day after the first administration of antitoxine, which showed no traces of diphtheria bacilli. The result points to the fact that the antitoxine, when brought into actual contact with the specific bacterial poison, causes its destruction; this, I am aware, is contrary to the opinion of Buchner as expressed by him at the Budapest Congress. He said that it should rather be considered as developing only within the organism, through its own instrumentality, in that a lessening (on the part of the living tissues of the organism) of the specific susceptibility to the poison, is produced, thereby the individual is rendered insusceptible and capable of resistance against that particular poison.

**Case VII.**—On the 22nd of November, G. B., aged eight years, complained of sore throat. There was a patch of membrane

on both tonsils; temperature  $100^{\circ}$  F., pulse 110; breathing normal. There were in this case a number of bacilli found in the culture, more even than in one of the patients that died, but although a slim, delicate looking boy, he did not seem to suffer much. I painted his throat every hour with iron and gave solution of nuclein, twenty drops every two hours; also sprayed with corrosive sublimate solution (1—7000). Milk, eggs and beef juice constituted his diet. The patient went on steadily, and at the end of eight days showed no bacilli in culture from throat. There was no albumin until the 10th day, when there was quite a large percentage; this only lasted two days. This case was, no doubt, acted on by nuclein solution, as no other medicine was given. The temperature and pulse became normal after three days treatment, and on only one occasion did the temperature rise above normal after treatment was begun.

*Remarks.*—Rise of temperature seems to have no significance as to prognosis in the cases I have at present, as in the cases above cited only one reached  $102^{\circ}$ , and that only for a short time.

**Case VIII.**—For particulars of the following case I am indebted to Dr. Albert Benedict, of this city, who is a man of large experience and accurate observation. On the 26th of November, Dr. Benedict saw B. F., aged 7 years, weight 40 pounds, of slender build. She had what seemed to be a slight attack of tonsillitis. He again saw her on the afternoon of the 28th. The temperature was  $103\frac{1}{2}$ , $^{\circ}$  F., pulse 124. She had been restless during the night and slightly delirious, and complained of pain in right tonsil. Glands of neck were swollen, and a diphtheritic patch covered right tonsil. Ordered mixture of chlorate of potash, perchloride of iron and corrosive sublimate to be taken internally, and an antiseptic spray to be used. On the morning of the 29th temperature was  $102\frac{1}{2}$ , $^{\circ}$  F., pulse 120. Right lymphatic glands much swollen and the patch



on the right tonsil the same as in previous day, but there was also a patch on left tonsil about  $\frac{1}{2}$  inch long and narrow. The patient had been very restless and delirious the previous night. At 5 P. M., temperature  $102\frac{1}{4}$ , pulse 120. Injected 8 ccm. antitoxine, obtained from the Pasteur Institute, New York; the other treatment continued as before. November 30th, at 9 A. M., temperature  $101\frac{1}{4}$ , pulse 94. Had slept better previous night and only slight delirium; glands on neck less swollen. Diphtheria patch had a soft appearance. Gave 8 ccm. of antitoxine. Temperature at 5 P. M., 100, pulse 84. Felt more comfortable and there was marked improvement. Spot on right tonsil smaller and soft on edges; spot on left disappearing. Gave 8 ccm.

December 1st, morning visit: temperature  $99\frac{1}{4}$ , pulse 82; condition of the throat was almost normal; evening visit: temperature normal, pulse 80. December 2d, morning: temperature normal, pulse 78; evening: temperature normal, pulse 80.

From the above careful observation, we see that the disease was absolutely cured forty-eight hours after the first injection of antitoxine. To our mind, this is a very interesting and accurate account of a bad case of diphtheria cured by the new remedy.

Case IX.—At 12:30 P. M. of the 4th of December, I saw Mrs. L., mother of the three children who succumbed to this disease and whose cases I have already mentioned. Her temperature was normal, pulse 92 and weak; urine free of albumin. There was a long, narrow patch of membrane on left tonsil, with slight congestion all over fauces. She felt tired and weak. I injected 15 ccm. antitoxine, without any other treatment. At 10:30 A. M. of the 5th, the pulse was 84, temperature normal. The congestion of fauces had disappeared; the patch was much diminished in size, and she said she felt very well. I administered 10 ccm. of antitoxine. No other treatment was ordered. On the 6th,

pulse 78, temperature normal. Patch had entirely disappeared and no albumin was in the urine. There was no tired feeling; appetite good, and she expressed herself as being perfectly well.

The conclusions to be drawn from the above particulars of cases treated by antitoxine are: that under certain conditions antitoxine has been actually proved to be an almost certain cure for diphtheria; that in other conditions it cannot cure it; that the earlier a correct diagnosis is determined and the remedy applied, the more certain are the desired results obtained; that the cause of the cure is probably the absolute destruction of the specific bacilli by the positive contact of a substance inimical to their existence.

The visible signs of improvement after giving antitoxine are, the loosening, or if small, the entire disappearance, of the membrane and improvement in the general condition of the patient, which goes steadily on to complete recovery. Kossel remarks that if diphtheria is treated early, there is little fear of subsequent paralysis. Koerte says that in a few cases urticaria occurred, presumably due to the antitoxine. In severe and moderately severe cases, no influence on the temperature or on the local force of the disease was observed, but, on the other hand, a markedly favorable effect on the general condition was often seen in some cases. Such was the case in the little boy I first gave the remedy to, although he afterward died.

Another very important fact mentioned by some observers is, that when intubation was deemed necessary, the tube could be dispensed with in from forty-eight hours to three or four days if antitoxine had been given in time, whereas the usual time for removing the tube is ten to fifteen days, or longer.

The question of dosage has not yet been decidedly answered; each maker has a different percentage of antitoxine in the serum, consequently each requires a different minimum dose.

The different preparations at present in use are as follows :

No. 1.—The original, made by Meister, Lucius and Brüning, under the direction of Behring and Ehrlich. This is supplied in three strengths, designated as No. I, No. II, No. III, containing respectively 600, 1000 and 1500 to 1600 immunity units. In explanation of this let me quote Kossel, of the Koch Laboratory. He says: "Behring and Ehrlich call normal serum such a serum that 0.1 ccm. will suffice to render inert ten times the fatal dose of diphtheria poison. Thus 1 ccm. of the normal serum contains one immunity-unit. Then a serum of which 0.01 suffices, represents 10 times the normal serum; 500 such immunity-units are necessary to cure a child with diphtheria." For protection against the disease, one quarter of a bottle of No. I only is needed, but Kossel would not trust to such immunity lasting over two or three weeks.

No. 2.—*Roux's* is prepared at the Pasteur Institute, Paris. This is almost identical with Behring's, but is not procurable out of France.

No. 3.—*Aronson's*, made by Schering, of Berlin, was actually the first supplied in this country. It comes in one strength only. The dose is much less than either of the others, either to cure or immunize.

No. 4.—The New York Pasteur Institute (Biological and Vaccinal Laboratory) sends out bottles containing 25 ccm.; also bottles of 7 ccm. The former is sufficient to cure one case, the latter to immunize several cases.

The first and last preparations are those used in the cases quoted in this paper. It is reported that some unscrupulous persons are selling spurious preparations as antitoxine, and it would be well if sellers of the serum were compelled to print the percentage of antitoxine on each bottle.

As it is perfectly harmless, the most desperate cases as well as the lightest should be treated with it; although when complications, including secondary infection, are present, the cure must be far from certain.

P. S.—The patient, A. L., already referred to, sent for me this morning. I found him suffering from a severe attack of urticaria. His whole body is covered with it; all around part where injection of antitoxine was made is erythematous to the extent of four inches in length and one and a half inches in breadth. He felt uncomfortable all yesterday, but feels relieved this morning. Temp. 89, pulse 96. This is the ninth day since I made the injection, but probably is caused by it. Several cases, as I have already noted in the above paper, have been reported as having taken place after the use of this remedy, but no notice has been made of the time when the rash appeared.—J. L. P.

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### VACCINATION OF LAND.

By ERNEST B. SANGREE, A.M., M.D.

Micro-organisms have appeared in a new rôle—one that is of great interest both scientifically and from an utilitarian point of view. As all know, it has long been customary in worn out grassfields or lawns to plant a crop of some other character, turn it down, and once more sow with grass, which is then found to grow satisfactorily. Some have attributed the renewed growth merely to the disturbance of the soil; others believe that certain plants absorb nitrogen from the air and store it up either in themselves or in the soil. An elaborate series of experiments carried on some fifty years ago proved that there were no plants capable of such action; still farmers went on in the old way rotating their crops.

At last two clever and persistent Germans, after years of experimenting, have harmonized science and practice. They found that certain plants, especially the leguminosæ do absorb nitrogen from the air, but only when they are diseased. This condition is marked by the presence of small tubercles on the roots, and in the tubercles are found small organisms, which

are referred to as "animals," but which I presume are ordinary vegetable micro-organisms. Their experiments tend to prove both, that there is a special microbe for each plant, and that it is the presence of this parasite which enables the plant to absorb nitrogen from the air. The young and healthy plants get their nitrogen from the soil, but when that is exhausted and the plants become sickly, the parasite appears and the plant begins to take in nitrogen from the air.

Obviously here was a discovery to be utilized. Nitrogenous fertilizers are expensive, and if the air could be made to do service, it was money to the agriculturist. These bright experimenters accordingly began to "vaccinate," as they called it, fields of leguminous plants with earth in which tuberculous plants have been growing, or with water in which they have been soaked; and the results have been extraordinary. Analysis has shown that a single crop of tuberculous leguminosæ, if the tops are turned in, adds to the soil per acre from five to twelve thousand pounds of nitrogen, worth from eighteen to forty-five dollars.

A number of experiments were made in fertilizing one patch of ground by the ordinary method and another by this simple and inexpensive plan, and always vastly in favor of the latter. The most signal result was obtained by an experiment in Prussia. A tract of land lately brought under cultivation was equally divided, and one portion vaccinated with earth from a lupin field. The whole was then sown with lupins, and the yield from the vaccinated portion was five and one-half times as great as that from the other portion.

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CHROATOL, or terpin-iodo-hydrate, is a greenish-brown, oily substance, soluble in ether, chloroform, etc., and is recommended for dermatological use by Fournier. We doubt that this note will prove of much value to the reader, but it is good to have the facts, meagre though they be, available for reference.

## ACETANILID IN DERMATOLOGY.

By J. ABBOTT CANTRELL, M.D.,

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So far as I am aware there has not as yet appeared an article upon the use of acetanilid in dermatology, and believing that the experience gained with its use in my clinical services in hospital and private practice will be of assistance to some one, and at the same time show exactly in what diseases we may hope to gain a benefit, I herewith place my experience upon record. I am convinced that it has a field of usefulness in some of the affections of the skin.

Acetanilid is one of the new drugs that was recognized by the Pharmacopœia of 1890, and according to the observations of Yvon, may be prepared as follows: 372 grams of pure aniline and 240 grams of glacial acetic acid are heated for four hours to the boiling point in a flask provided with a reversed condenser; the excess of both ingredients is then distilled off on a sand-bath, this being completed when the temperature reaches 260° C. The cooled, congealed residue is crude acetanilid, which may be purified by crystallization from water; the yield is about 400 grams.

Other and possibly more easy methods of preparing this drug have been referred to; thus, Gerhardt made this salt by the action of acetyl chloride upon aniline, and following him I find that Kelbe obtained the same product from a combination of aniline and acetamide and the application of heat. The sublimed salt, being much whiter and lighter than that obtained by crystallization, has the appearance of boric acid.

Acetanilid is entirely devoid of odor, and though at first the taste is not apparent, after a short time a camphor-like flavor is noticeable, followed by a slight

aromatic taste; this in turn gives way to a burning sensation, as well as some nausea, immediately afterwards causing eructations and giving a sickening sensation.

This drug is soluble in 194 parts of water at 15° C. (59° F.), and in 5 parts of alcohol; in 18 parts of boiling water, and in 0.4 parts of boiling alcohol. It is also soluble in 18 parts of ether, and easily soluble in chloroform. In liquid petrolatum it will dissolve readily, 40 grains to the ounce.

During a period of several months, after giving the drug what seemed to me a fair trial, and having tested its virtues in a number of affections of the skin, I believe that it will prove a beneficial application, and also, that with further study and observation we will find a still wider field of usefulness for it.

The methods of application were as follows:

Powder:—Acetanilid 25 and 50 per cent. with pulvis amyli.

Ointment No. 1:—Acetanilid ..... gr. x;  
Petrolati..... 3 ss. M.

Ointment No. 2:—Acetanilid..... gr. xx;  
Petrolati..... 3 ss. M.

Ointment No. 3:—Acetanilid ..... 3 ss;  
Petrolati..... 3 ss. M.

Solution No. 1:—Acetanilid ..... 3 ss;  
Liquid Petrolati.... f. 3 ss. M.

Solution No. 2:—Acetanilid ..... 3 ss;  
Liquid Petrolati.... f. 3 i. M.

Solution No. 3:—Acetanilid ..... 3 ss;  
Collodium..... 3 i. M.

*Intertrigo.*—The drug exerted a beneficial influence when applied upon any portion of the body where the upper layers of the cuticle had been removed, either by contiguous portions becoming moistened and rubbing together, as it often found in cases of intertrigo, either of that form associated with simple erythema, or where a decided eczema had been produced. Applied in the erythematous form of intertrigo, the use of the twenty-five per cent. powder afforded much comfort to the patient, and only in very rare cases of extreme severity was it necessary to resort to the stronger application (fifty per cent. powder).

The records show that the remedy, em-

ployed either in the twenty-five or fifty per cent. powder, was tried in about twenty-five cases, and that it was necessary to apply it only for about twenty-four to forty-eight hours to obtain relief. As these cases are often very rebellious to treatment, I think it is a very fair showing.

*Eczema.*—My observations were more extended in cases of eczema, and although the drug exerted a curative action in some of them, I was unable in still another class to receive much benefit; but after a summary of the results, I feel inclined to believe that the drug is worthy of more experimentation, and I hope that some one will take a hint from this and give us some more reports of its use, not only in this class of cases but also in others of a dermatological character.

As stated, it exerted a curative action in some of the cases, more particularly acute cases of vesicular eczema. eczema rubrum and in the seborrheic type of short duration; but while my experiments went to show that the drug was more of an astringent than a stimulant, I still tried it in a number of cases of long standing, when the patients said: "Oh, I have had it for years," and "I cannot say how long I have had it;" also in others where the disease was properly stated to have been in existence for nine months to a year. After using it in a number of such cases, I was pleased to note the happy curative results. Possibly it may be wise to state that these patients did not get well without decided perseverance in treatment.

Some of the latter cases were those, in which we find decided thickening and infiltration as an accompanying feature; others, owing to the annoying itching, showed decided tearing of the skin; and still others, where there was a great amount of fissuring, *i. e.*, when the disease affected the palmar and plantar surfaces. In cases of vesicular eczema of long standing, and especially in that class of patients working in silver, brass or bronze works, I obtained good results in a number of instances.

*Herpetetic Eruptions.* — Following the above-mentioned experiments, my observations in herpes, both of the simple variety and of true zoster, resulted in giving about the same opinion as the foregoing conclusions. In cases of simple herpetetic eruptions around the mouth or the nasal cavities, the drug certainly did have a soothing action, and while in some of these cases the pain almost equaled that of zoster, it undoubtedly produced an agreeable impression. I remember one case in which I thought acetanilid was not acting as promptly as it should, and advised a change in the treatment; on the following day, or at the next visit of the patient, she requested that the acetanilid in solution be given her again (solution No. 1) because that had afforded more relief. In cases of zoster, a number of which were treated with the solutions, No. 1, 2 and 3 in turn, the results were of the same curative character, and I did not find any apparent difference whether the liquid petrolatum or the collodion was used as the vehicle.

The number of zoster cases were in all about 25, covering a period of three months or over

*Ivy poisoning.* — The results following the use of acetanilid in cases of dermatitis renenata (although the number of cases was limited) justifies a further study of its action at a later period. Unfortunately at the time of beginning my studies, the cases of ivy poisoning were comparatively rare at my clinic. I usually advised the drug in solution, and for the most part, either solutions No. 1 or 3; and in the few cases observed the solution with the liquid petrolatum had a much better effect.

*Seborrhea.* — Entering a slightly different field, my clinical investigations were extended to cases of seborrhea, and in speaking of this disease I refer to those of a true seborrheic nature not in any manner connected with eczema. Although most of these cases were not well marked, the results were certainly very gratifying, and

after a study of fifteen or twenty cases, both in dispensary and private practice, I am convinced that the drug has distinct therapeutic value.

*Pityriasis capitis.* — The result in cases of pityriasis capitis was equally as good, I refer to cases of a desquamative nature, in which there is a denuded condition of the epithelium, so graphically described by my friend and teacher Professor Van Harlingen (A Contribution to the Study of epithelium, *Amer. Journ. Med. Sci.*, July, 1876). In these cases I found that the use of the weaker solution (solution No. 1) for a period of one or two weeks, was followed in some instances by very decided improvement, and in those of a more pronounced character the stronger solution (solution No. 2) gave a very gratifying results.

*Ulcers, Syphilitic and Non-Syphilitic.* — On further careful study of the use of acetanilid in the treatment of ulcers, both of the syphilitic and non-syphilitic type, I must confess that the results were even more satisfactory than I had anticipated. My studies in both classes of cases were made either with ointments or powders. In the non-syphilitic type I generally advised the use of ointment No. 1 to begin with, and if the result was not quickly apparent, stronger preparations were prescribed. In some of the cases the weaker powder was used, followed by an ointment of zinc oxide; and with either method the results were indeed very satisfactory.

In ulcers of the syphilitic type my results were even more noticeable, and in this class of cases I made many changes, so that I could determine the value of one method of preparation over the others, although the proper strength of application must be used before benefit resulted.

*Impetigo Contagiosa.* — In impetigo contagiosa, my results were, in the majority of the cases, very satisfactory, but in a number of instances the treatment had no effect whatsoever; therefore, I concluded that this remedy would prove effective in

mild cases; in others a more active parasiticide should be chosen.

*Ringworm.*—In cases of parasitic disease, those of the ringworm nature, such as *tinea circinata*, *tinea sycosis* and *tinea tonsurans*, and *tinea versicolor*, I found that the action of acetanilid was mild indeed, and that the cases became worse while under treatment, possibly with the exception of *tinea circinata*, in which it had a curative action only in the mildest cases.

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### CONSUMPTION; ITS CAUSES AND TREATMENT.

By J. P. KOONSE, M.D.

If we take into consideration all the varied teachings by different authors, it seems difficult to word a definition that will compass the meaning of consumption; but we are not in search so much of a comprehensive definition as of a central truth, a key to this diseased condition, and the causes that produce it—that will simplify and lighten the work of the physician, and possibly secure better results from treatment.

It has been said, "This is an intensely practical age"; it is also an age of crazes, an age of untenable theories at least. A theory or hypothesis too highly specialized is liable to prove untenable. Thoughtful physicians well understand that the very weakness of every theory, correct or incorrect, is that it rests on only a part or parts of facts, and too often parts that are most insecure or unsafe, leaving the theory liable to crumble under practical tests, because, as has been said, "too highly specialized." I would not be understood here as opposed to specialties in the practice of medicine, for the contrary is true. All are included who allow prejudice to control their investigations, and who are content to stop short of correlating all the facts and determining the correct-

ness or incorrectness of their theories by practical tests. A specialist should be a general student—a liberal, unprejudiced thinker. True science trains the mind to impartially analyze facts. Perhaps nothing more clearly illustrates this position than the incongruous bacillus-bacteria-microbe craze, which finds a bacillus for every disease to which "flesh is heir." This theory has been proven so absolutely untenable by failing to respond to any and every practical test, that to attempt a serious reputation of the error would seem a needless waste of time, and ridicule would be fitting but for the fact that there still remain a few well-regulated minds, entitled to respect, who hold on to this theory with some tenacity, evidently awaiting a comfortable exit, a safe retreat.

We are, in view of the constantly and rapidly accumulating evidence to the contrary, surprised at such expressed thoughts as the following from Dr. J. Lindsay Porteous, in the *AMERICAN THERAPIST* for Oct., 1894: "The patient years of study of Pasteur, Lister, Koch, and others are bearing fruit." Yes, doctor, they are bearing fruit, but are the fruits not being borne in the hearse and to the grave? *Apropos* is the statement recently published touching the disastrous results of attempts to establish the correctness of this theory in respect to consumption, that "Koch and his followers are responsible for the loss of a greater number of lives than were slain in the four greatest battles of the nineteenth century." This claim we are not prepared to affirm or deny. Even could we establish the truth of the above estimate of the great mortality, there would still remain the question as to how many of this number might have been saved by other agencies, undetermined and undeterminable.

So also with Pasteur's work. I doubt if there is one well authenticated case of the prevention or cure of rabies notwithstanding his voluminous reports to the contrary, for the simple fact that of all his subjects, the number in whom rabies would have

developed *must* be and remain undeterminable. I know that some will call this presumption, but the profession is ripe for the exposure of these fallacies, and our sacrifice cannot be greater than Winkelreid's.

But we are not alone Appalled, as it were, at the results, the learned Charcot cried, "Stop, gentlemen, stop. For God's sake, stop!"

The fallacy of this theory is no where more apparent than when applied to tuberculosis—if facts and statements collected from the reports of the acknowledged ablest and most reliable authorities are worth anything. Dr. Brehmer, Superintendent of the Hospital for Consumptives, at Gorbardsdorf, Germany, in his report says, that from the founding of this hospital, in 1854, covering a period of twenty years only, more than ten thousand consumptives visited this home; that these visitors daily walked the streets of Gorbardsdorf; that the dried tubercle-laden dust was constantly breathed by its inhabitants; but, instead of an increase in the death-rate from consumption, as would have been the case if the doctrine of contagion was true, the mortality rates decreased more than fifty per cent. after the establishment of this home. Later on in this paper, I shall refer to one reason given by Dr. Brehmer for this favorable decrease in the rate of mortality. One more reference: the theory of contagion is further disproved by the report of a committee of able physicians, appointed, perhaps a dozen years ago, by the British Medical Association to investigate the communicability of consumption between husband and wife. To the printed inquiries sent out by this committee about one thousand replies were received; of this number nearly eight hundred were negative; thirty-five, I believe, were uncertain, and the remainder affirmative. Here the great preponderance of proof is adverse to the doctrine of contagion, so great that the health officers of the City of New York should, and ultimately will be, heartily ashamed of their at-

tempts to repeat the blunders of Italy, that once confined all consumptive patients in pest-houses as completely isolating them from their friends as would have been the case in small-pox or leprosy. This unwise action had the effect of so largely increasing the mortality from consumption as to compel a modification of the law.

But why the argument? The fundamental proposition that the tubercle bacilli, inhaled or breathed into the system with the dried tubercle-laden dust, alone causes consumption—yet the health of the individual must be in a depressed or low state; the blood must be in a state of decomposition that the bacilli may find a lodgement—is *per se* self-destructive,—a faulty syllogism, if it may be so dignified.

For more than twenty years the writer has held that the tubercular and catarrhal diatheses, as well as all constitutional diseases, are sequelæ or results of a degeneration or waste of nerve tissue and perversion of nerve force, publishing in 1875 a brochure entitled "Consumption, a Sequence of Waste of Nerve Tissue." Fifteen years before this, Dr. Gull, of England, had written an article in which he recognizes the fact that consumption in a case he reported was caused by vague disease. I never read his article. My thoughts were directed in this channel by Dr. Taylor's report of President Day's case in the *Herald of Health*, March, 1869. "It appears that Mr. Day was a feeble youth, and when a young man, had unmistakable evidences of consumption. He spent a season in the West Indies without benefit. He returned to his native place to die. Directing the treatment to the nervous system especially he recovered and lived to the age of ninety-five. A post mortem examination showed a dense, corrugated cicatrix an inch and a half in diameter, proving the former existence of cavities of long duration."

My studies since have convinced me that not only are the tubercular and catarrhal diatheses of nervous origin, but they are as eminently curable under equally favorable

circumstances and proper treatment as any constitutional disease. This is conceded, I believe, by those of the profession who have given it much thought. Even the laity recognize that strong emotion will produce or aid in producing such conditions as diabetes, chorea, epilepsy and hysteria, and it is clear that cancer \* is developed by the influence of such accidents. That such depressed physical and mental conditions render the organism susceptible to the poisons from profound alterations, is readily conceded when we understand how such violent emotions admit many toxic influences.

Let these violent emotions occur often, or be continued for an extended period, and we sooner or later have established an alarming waste that threatens a destruction of what Dr. Love properly calls "the main capital of life"—the nervous system.

Recalling, as intimated, the report of Dr. Brehmer, of the Gorborsdorf Hospital for consumptives, he thinks the largely decreased death-rate from this cause is "due to the better chances of money getting," thus freeing the people of that vicinity from one great cause of nervous exhaustion.

In the opposite condition of life, among the wealthy, we find many equally depressing causes. Ever mingling in the giddy round of dissipations and pleasures that are ephemeral and unsatisfactory; ever seeking some new diversion; turning night into day in pursuance of follies, and resorting to the use of unnatural stimulants to brace the flagging, wavering nerves, we have no less a rate of mortality from consumption than among the very poor.

It is the middle class, as it were, those who are not fully above the necessities of labor, mental or physical, and yet free from driving worry of the less fortunate, who enjoy the greatest immunity from consumption, as well as from every other constitutional disease.

\* Treated in "Nervous Origin of Disease," in preparation.

We have pointed out, that violent emotion opens the gates to admit innumerable toxic agencies, producing, often, an altered condition of the blood. These poisonous elements are exerted against the cord directly causing, as in *la grippe*, a degeneration of the spinal nerve-cells, and it follows as certainly as day succeeds night that a waste of the accessory spinal nerves must ensue, and a resulting impairment of the functions of not only the lungs but every organ to which they are distributed. Prof. Mays, of Philadelphia, than whom we have little if any better authority, after an analysis of eighty-five cases of consumption that fell under this care, reached this conclusion:—"These cases illustrate beyond the cavil of a doubt that pulmonary consumption is the product of vague degeneration."

The lesions known as catarrh, catarrhal pneumonia, broncho-pneumonia and tubercular phthisis are the same and have a common cause-degeneration of the nervous system.

But what shall the treatment be? What are true therapeutic agents? Let us first remove obstacles and correct wrongs that operate to limit all treatment by the physician, no matter how well selected; yet it is easier to write this admonition than to accomplish the removal.

An important and too common error is that the physician insists upon the patient taking excessive exercise. Nothing is more unreasonable. If the wasting and consequent debility is pronounced, enjoin rest—absolute rest; this is an important factor in the treatment of consumption. I do not mean that the patient shall go to bed and remain there, but rest in the open air, when possible free from active exercise. The question of proper food and its supply is quite well understood by the physician, namely, all foods should be selected to afford the most complete nutrition, and the least difficult of digestion. If in any case any artificial aid to digestion is required, I would use papain rather than pepsin. In short, I sum up the



proper hygienic conditions somewhat as follows: pure air, pure and nutritious food, proper rest, undisturbed sleep, regularity and temperance in all things; pleasant mental, moral and social conditions, cleanliness and sun-light; let these conditions be secured in the highest degree possible in each case. As to medicinal agents, I regret that my experience and observation is not to encourage the employment of creosote; it is too decided an irritant and over-stimulates the gastric cells, impairs digestion and nutrition.

Strychnine in the early stage is no doubt productive of good, if administered in small doses; it is always more efficient in small doses than large, should not be and used in doses larger than  $\frac{1}{16}$  to  $\frac{1}{8}$  gr. *t. i. d.*

In all the years that the profession have been using cod-liver and other oils the benefit derived (and it is much) has been through their nerve supporting properties, and in this respect I have had good results from the malt extract with cod-liver oil and similar preparations as tissue builders, or rather, supporters.

Yet we turn for true relief in pulmonary consumption to the treatment that will regenerate the atrophied nerves—renew the wasted nerve tissue. Fats and oils and malt serve a good purpose as temporary supporters, but are not adequate to the renewal of nerve tissue, and if we fail in this we fail in all. The process of regenerating the attenuated nerves may be slow, but it is our only hope in this disease. I would use in connection therewith a reliable nerve alterant, modifying it to suit the individual case.

Of fourteen cases of true tuberculosis treated ten years ago on this plan, seven are now enjoying good health; one is in uncertain health but, except the debility, the evidences of tubercular disease are gone; two died of consumption; one succumbed to *la grippe* eight and a half years after treatment, and the others are lost to sight. I mention cases treated ten years since, that the time may enter into the estimate of the value of treatment. Cases treated since are equally encouraging. I would be pleased to report at length two of the above cases as especially interesting but have now exceeded the limits of space intended.

Lafayette, Ind.

## THE SOCIOLOGICAL STATUS OF MEDICAL PRACTICE.\*

By THEODORE W. SCHAEFER, M.D.

Besides the attainment of a knowledge of the alleviation of suffering humanity the thoughtful and investigating physician should also direct his attention to the study of medical sociology, or that branch of social science which concerns itself with the social as well as economical aspects of the practice of medicine. The physician of to-day, historico-socially considered, occupies a different standing in society from that held in the past. Originally, in the early periods of development of the social organism, medicine and theology were inherently united; and even after their ultimate separation as distinct avocations they enjoyed the highest esteem among the people. The history of medicine enunciates the fact that physicians were generally revered and held in high esteem by the ancients.

Jesus, the son of Sirach, says: "Honor a physician and in the sight of great men he shall be in admiration" (Ecclesiasticus, chap. xxxviii). This elevated social position held by physicians continued through all historical periods until the end of the eighteenth century, which marks the zenith of idealism, and which may also be regarded as the golden age of the medical profession, if we are to interpret this age by its lofty thoughts and humanistic tendencies.

The pursuit of the practice of medicine was considered as one of the most elevated and conscientious vocations, in contrast with the present realistic, or rather, materialistic epoch—the intellectual tonus of the nineteenth century—which characterizes medicine as a kind of trade—a sign of degeneration! As a natural result of the materialistic undertone of this century, medicine drifted into the great commercial stream of the age, whose currents tore it up into increasing specialties. The Re-

\* Read before the Kansas City Medical and Surgical Society, August 9th, 1894.

constructive Period, or just about the middle of the seventies, eventuates the beginning of a great cycle in the medical history of our country, for during that time *medical syndicates*, called "medical colleges," shot out of the ground like mushrooms, so to speak, and multiplied in such appalling and anomalous numbers that the "production" of physicians by the above mentioned "industries" totally eclipsed the "out-put" heretofore "graduated."

Now, what are most of these so-called "medical colleges," anyway? Why, they are simply commercial institutions operated by mercantile physicians, whose highest ideals are centred in pecuniary, not intellectual, achievements. It is not to be wondered then that these physicians, self-styled "professors," do not at all hesitate to use unscrupulous methods, in this greed for "material" (*i. e.*, students), so long as they are only considered to be legitimate, in order to make these enterprises financial successes. The policy of these self-styled professors is to make medical dillettantes or hybrids out of these ignorant students, and to utilize them as drummers or agents.

The commercial era of medicine, as a natural consequence, marks an important change in our system of medical education, for the latter was placed upon a *business basis*, and underwent the gradual phase of a mercantile metamorphosis. The fact that a general education is not at all necessary to become a physician has always acted like a *primum mobile* on all those who were out of harmony with their positions and environments. The pernicious sophistry that "one man is as good as another," and the phenomenal increase of the so-called medical colleges are factors which have pre-eminently contributed to the creation of the present chaotic condition of the social and economical status of medical practice.

Every one, who has the best interests of his profession at heart, must feel himself ill at ease in a profession which at-

tracts only men who have never received a general preliminary training, and who have no knowledge of literature or science. Medicine no longer attracts men who have received a good college training. According to Dr. Holmes it is a notorious fact, statistically, that only fifteen per cent. of college bred men take up the medical practice as a means of livelihood. This sad showing certainly does not tend to elevate the character and standard of our profession in this country. The result is that medicine is now, practically, in the hands of a commercialized proletariat, and the process of overcrowding has assumed such dimensions that we have now *six* physicians in the place where there is only room for *one*; and this deplorable and eccentric status is kept up by turning out annually more than 2,000 doctors to help augment the vast army of physicians, which certainly does not ameliorate the lot of struggling sons of Aesculapius. Innumerable men of inferior mentality enter upon the practice of medicine with the idea of getting rich, when they ought to be selling groceries and hoeing potatoes. Talk here about "competition"! There is a prevalent idea, based upon a popular fallacy, that the medical practice offers excellent inducement to outsiders (*i. e.*, the uneducated), and that it is one of the most easy-going of the higher or intellectual professions, and, last but not least, that most of the physicians are supposed to have a lucrative and some even a fabulous income. Facts, however, do not at all harmonize with the pet delusions of the people, for many physicians never attain the goal of their early ambitions, and are compelled through force of circumstances to lead a life of struggle; only few are able to accumulate a competency to ward off the anxieties of advancing years, whilst many, after falling as undeserved victims to unprincipled rivals, are forced to give up medicine and are obliged to embark into other avocations in order to eke out an existence.

The impetus to attain wealth being a kind of will-o'-the-wisp, has always acted like a great charm on the young men of our country, whose vanity and ambition have no limit; and the desire to possess the title of "Doctor of Medicine" (!) with its supposed great promises—for our common people are really psychopathic on the subject of titles—has had the sequel of disappointment to their fond anticipations. The cold reality of experience at once annihilates these fond delusions, for the observant physician, who is familiar with the social and economical conditions of his own profession, knows only too well that the practice of medicine is by no means crowned with laurels, metaphorically speaking, and that his path is fraught with obstacles and disappointments innumerable. The poor think of nothing but money, and that is the reason why so many of them, without culture and talent, invade the profession, with the expectancy of becoming rapidly rich. If the majority of the people would only know that *physicians practice without profit and that there is no money in medicine*, it lacking those conditions which have been designated as essential to a life pursuit, they certainly would let medicine alone! Half of our life-time is devoted to *unlearn things, how not to make unnecessary mistakes, and to learn to let certain things alone!* The physician, after years of toil, learns to know the mind better than the body, and, being thrown among all kinds of people, is often reminded of the ingratitude of patients, of which the medical profession has so often to complain.

One of the best written articles on the socio-economic status of medicine that I have read, was published in *The Medical News*, May 23, 1893, by Dr. J. P. Armour, under the heading, "The Practice of Medicine in Ontario, Canada." He says, among other things, that "there are perhaps no other professional men so poorly remunerated for their services as those engaged in the practice of medicine. The chief causes

of lack of remuneration are over-crowding, charity practice, and general bad business management." He says that most of our medical brethren "are moderate and economical liver." The dear, credulous public need not imagine that we—the Kansas City doctors—are all living in the palatial residences of this town, and feasting daily on quail on toast and diamond-back terrapin! Most of our popular members of the profession have acquired their wealth through marriage, speculation or inheritance. He attributes "the insane rush of young men, and women, too, into the profession as chiefly due to the extravagant puffing of a considerable portion of its members regarding the financial results of their labor." I consider this unmanly habit, as Dr. Armour calls it, as pathological with many physicians, and designate it as a kind of *pseudologia phantastica*. I have always endeavored to study the human forces that surround me. I like to observe my colleagues and study them psychologically. The recognition and comprehension of socio-economic facts pertaining to medical practice have always been considered as a kind of a *noli me tangere* and treated in a *laissez faire* way. Every conscientious physician should by all means attempt to disillusionize the people from the prevalent beliefs regarding the glamor of a physician's name, fame, title, and popularity, which attributes do not exist for him, but only in the minds of the people.

Now, a few words in regard to gratuitous rendering of medical services to the deserving and undeserving. There is certainly, in my mind, no other business or profession in which there is so much labor wasted as in the medical profession. Ethically there is no question at all that charity should be extended to whom it belongs; but I do not believe in indiscriminate charity. Physicians should emancipate themselves as much as possible from charity work, which properly belongs to city or poor physicians who are amply paid for what they do. Even Isaac Ju-

daeus, who flourished in the good old time of 880-940, advised against gratuitous treatment, because one gets no thanks for it—an old experience! The clergy are apt to be free patients, but they are at the same time the most grateful of all. Among those who frequently make demands upon the services of a physician are, foremost, his friends and his relatives, who are often in good circumstances and well able to pay a physician, but take advantage of his good nature and never think of even recommending him to their sick acquaintances. Did the thought never occur to you, gentlemen, that you are doing less and less surgical work as the years fleet swiftly by? How about your surgery work now? Surgery is "mostly carried on in institutions," as my friend, Dr. George M. Gould, the erudite and distinguished editor of *The Medical News*, says in one of his well-written editorials on "Socialism in Medicine," Dec. 23, 1893: "Formerly the young doctor had a chance of being called to attend an accident case happening in his neighborhood. Many a physician has won his way into a fair practice through skill shown in such emergencies. But today the patrol-wagon or ambulance is as speedily obtained as the nearest doctor, and the case is whirled off to the hospital. It cannot be doubted that the dispensary greatly injures the family physician, whose advice was formerly asked for and remunerated by a large number who now regularly attend the special clinic. Private patients should be compelled to pay for medical attendance, and at clinics and dispensaries, some charge for services should be made, except in certain cases. It is as pauperizing to a community to give gratuitous medical services as it is to give free bread."

You are, no doubt, aware of the interesting fact that in these changeable times, when people are spoiled by reason of having so much choice in the selection of doctors, a physician can no longer hold an acute case for any length of time

without another physician being called in to take charge.

I do not approve the *laissez-faire* policy, which is wrong, of waiting a long time before sending out accounts to patients. The business man does not forget to send his bills to the doctor when they are due. Why should the doctor be different in financial matters? Compared to a business man, a physician receives but a small pittance of this world's goods. The business man thinks of nothing but his goods and studies only how to make money, whilst the physician lives in a world of abstract ideas and soars in lofty regions of thought.

In my association with physicians I have not refrained from entering into the investigation of a difficult subject, and that is about the *actual financial income of physicians*. I have succeeded in eliciting the important fact that the *income of physicians is decreasing year by year*. Some physicians have been very reticent about this matter, but the reason for such reticence will be readily understood on psychological grounds.

And now we come to another important consideration, and that is the professional relations of physicians. In my social intercourse with physicians I have often observed the old psychological phenomenon, that doctors do not show a great love for one another—a hereditary infirmity—for it is human to say: "Oh, I don't like him!" The so-called *entente cordiale*, supposed to exist among doctors, is a metaphysical fiction. Their relations are not exempt from petty strifes and prejudices, and we all know of the proverbial impotence in matters pertaining to the welfare of the profession and in all efforts appertaining to united and concerted actions. They wilfully accuse another of many things that are true and are not true, and each one believes that he is more (?) than his colleague—things that cannot be said of our legal friends. Physicians are naturally jealous of each other, and the more successful ones, especially those who have the for-

tune to earn more money, are the most envied. Oh, what a folly! The intellectual riches are greater than all worldly wealth.

At first the young men are more plastic in their good will and affection, whilst the elderly gray-beards show a decided jealous and selfish hostility, which reminds one of the old Greek adage: *Πρα Χος Πρα Χα Ουορέει, Καί ιατρος ιατσα!*

I have been obliged to change my idealistic conception of this world considerably in these days of active nationalization and centralization of medicine, and often contemplate the many things that are done by physicians under the cloak and at the expense of "ethics," a word which is fast losing its meaning. Physicians should be more sociable and foster friendly relations, for this life is too brief and ought not to be devoted to opposite feelings. Have you ever been called to a poor, sick doctor, who has a family dependent on him? Just think of his plight, and then you will think better of doctors!

And now we come to a *pars tetricus* which is a very delicate subject to dilate upon, and that is, whether our physicians devote their time to intellectual pursuits? Those whose ambition is along the line of acquiring money, pay little attention to intellectual achievements, whilst those who find pleasure and delight in books are poor practitioners of medicine. No one can serve two masters. *The Post-Graduate* of August, 1893, says of doctors who do not read: "Our own experience is that country doctors also, as a rule, read very little and then mostly medical journals of a very thin character. Physicians of cities have more opportunity of learning through professional intercourse and libraries, and make up for being superficial students in this way. Both classes make the mistake of not equipping themselves liberally with books and apparatus for applying their art. These are tools of the artist, and they should be well supplied. There are doctors who will spend indefinitely upon their horses, and refuse to buy

a good stethoscope or a two-dollar book."

I have endeavored to give a short sketch of the present state of affairs that mar the practice of medicine, and have confined myself wholly to bare facts, not painting them in a *colour-de-rose*; and in its preparation I have been imbued with John Stuart Mill's dictum, that "the diseases of society can, no more than corporeal maladies, be prevented or cured without being spoken about in plain language."

We are before the threshold of a transition period when our present dishonorable and deplorable system of medical education will have to give way under the influence of a remedy that is coming—higher medical education—which means a six years' course with a previous collegiate training.

1116 Main St., Kansas City, Mo.

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## Recent Medicaments.

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IT IS DEPLORABLE that unrestricted license in the coining of proprietary names for medicinal agents—especially chemical compounds—is tolerated. There are a score and more instances now where the change in one letter, or the reversal of one syllable, indicates an entirely different product, although phonetically hardly any difference is apparent; the danger from such similarity is great.

Two new specimens of this reckless nomenclature have just appeared; viz., "Antitoxine," which is industriously advertised by an English firm as "an antipyretic, antineuralgic and antirheumatic, powerful yet perfectly safe," and "Salactol," a combination of the sodium salts of salicylic and lactic acids, recommended as a superior prophylactic and remedy for diphtheria. It is needless to point out the total lack of justification for calling the antipyretic "antitoxine," especially at this time when all the medical world is discussing serum therapy and applying diphtheria and other antitoxines accordingly. And the author of "salactol" surely knew of *salacetol*, which has been in use as an

improved salol substitute for several years now, and bears a name rationally concentrated from its constituents.

The medical press should exercise a censorship on this coining of names for new remedies; and if such a disposition is once actively shown, the manufacturers will soon consult and be guided by the competent counsel of experienced authorities.

**DIPHTHERIA ANTITOXINE SOLUTIONS.**—*Aronson's* solution has yielded the best clinical reports so far, and is favored by the expressed preference of Prof. Virchow; this product is supplied of one strength only, in 2 and in 5 gramme vials,  $\frac{1}{2}$  to 1 ccm. being sufficient to assure immunity; the application is made with sterilized syringe,  $\frac{1}{2}$  to 1 ccm.—according to age—at a single injection, and in advanced cases repeated injections. *Behring's* Heil-serum is supplied in  $\frac{1}{2}$  oz. vials, of three strengths: No. 1 is equivalent to 600 antitoxine normals, one-quarter of which assures immunity where infection is threatened, or full contents of a vial will abort the disease if only one or two days old; No. 2 contains 1000 antitoxine normals, the dose for advanced cases and for adults; No. 3 represents 1500 normals, and is not regularly employed because unnecessarily strong except for almost hopeless cases. *Roux's* product is identical with *Behring's*, though less concentrated, and is made and used in France only. *Gibier's* antitoxine serum is produced at the New York Pasteur Institute; it is identical with *Roux's*, and is the first made in America. The immunizing power of this product is 1 to 50,000, and 1 to 1 ccm. of serum will therefore assure immunity; the dose for treatment after infection is 25 ccm., in one or two injections, to be repeated daily if necessary. Many favorable clinical reports are now being reported on the use of *Gibier's* serum. It is reported that *Lister* is preparing some in England; the New York Board of Health will have its first yield early in January; and in many other cities of the

United States the production is in progress.

**CARNOLIN** is an "active and absolutely harmless, and chemically indistinguishable disinfectant and preserving agent for food products," advertised in French journals. By analysis it has been shown that the preparation is simply a weak  $1\frac{1}{2}$  per cent. aqueous solution of formaldehyde (occurring in this country under the name "Formalin"); the product should not receive endorsement for such use.

**ADONIS AESTIVALIS** has lately been "introduced" and recommended as an anti-fat, heart tonic, etc. We find on reference to old books on materia medica, particularly one on botanical drugs published in 1840, that "the flowers and seeds of *Adonis aestivalis* were used in olden times for copious mucous secretions (Verschleimung, G.), and in uric acid diathesis, but have long ago been discarded." This reminds us of numerous other efforts to resuscitate obsolete drugs and give them new life by modern advertising. These efforts usually fail.

**PROF. LOEFFLER**, of Greifswald, parent of the K.-L. bacillus, has introduced a new diphtheria remedy. The formula is this:

R Menthol.....10 gm.  
Solve in  
Toluol.....ad 36 ccm.  
Alcohol absol. ....60 ccm.  
Liq. ferr. sesquichlor ..... 4 ccm.  
M. ad liginam flavam.

The solution is applied with a cotton-wrapped probe, first removing the mucus as much as possible. The bacilli are destroyed within 5 seconds, but the application should be continued longer in order to penetrate thoroughly. Prof. Loeffler believes that this treatment will give the best results; but suggests that it be used in conjunction with the antitoxine injections—thus attacking the germs of the disease internally and externally, and making sure of the extermination.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
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## Editorial.

### TOXINES OR ANTITOXINES?

The lay public cannot have failed to notice the peculiar dilemma in which the medical profession finds itself owing to the recent claims respecting the therapeutic value of blood-serum in the treatment of diphtheria. Indeed, it is a momentous question; and, as previously pointed out in these columns, is destined to revolutionize our methods of practice, because it will compel us to make an entire change in our conception of the morbid complexus known as disease. In a previous number of this journal (AMERICAN THERAPIST, September, 1894) we elaborated the physiological rôle of antitoxine inoculations. It was fully shown in that article how the so-called antitoxine inoculations were instrumental in producing immunity, and the *methodus medendi* by which they effected cures. While the word, antitoxine, was used in its present acceptation, it was demonstrated that the modicum of the solution employed could not possess its virtues through either chemical or physiological activity, as we now understand chemical and physiological action, yet it was not intimated that the method of treatment was a fallacy, nor that ultimate failure would

result from these investigations. The virtues of the antitoxine inoculations, it was shown, must depend upon the ability of these solutions to produce or create an artificial leucocytosis, thus increasing the aggregate output of nuclein in the organism. The article in question appeared three months ago, but so far it has not even received a passing notice, although the medical and lay press is crowded with reports, good, bad and indifferent, in regard to the clinical results of medication by blood-serum.

Clinical evidence is usually good evidence, but it is not always sufficient evidence, because, while the plan of treatment may result in a successful issue as regards any particular disease, the later effects of medication may prove disastrous to the patient. Opium and its salts may be used to relieve pain, and they do frequently serve a useful purpose as temporary expedients; but in the face of this evidence we must take into account the very large and increasing number of persons hitherto good citizens, who have become addicted to the abuse of what was at one time an effective remedy. Potassium chlorate has been used extensively in the treatment of diphtheria, and although it has doubtless proven effective in many cases, the deaths due to its injudicious employment would make a formidable claim against its further use. So it was with corrosive sublimate in the early days of antiseptics; no doubt, thousands of deaths resulted from the injudicious use of this drug in the treatment of surgical cases, although now it does not enter into the calculation at all. Again, the use of tincture of chloride of iron has been largely employed for the relief of anemic conditions, causing an untold amount of harm to the teeth of the rising generation (as a result of which, there is no country in the world where the practice of dentistry is more successful); but the administration of this product has fallen into disuse. The immediate effects were beneficial, but the after-effects were deplorable.

This recapitulation appears to be necessary in order to present with proper force the subject of toxines and antitoxines. What is the nature of these products? Strictly speaking, they are poisons and antidotes, and should act as such either chemically or physiologically. If we take a toxine into the laboratory and manipulate it, is it reasonable to assume that we can change its character, or convert it into an antitoxine? The absurdity of this suggestion is such that no serious attempt need be made to demonstrate its untenability. And yet, this is substantially what is claimed for the present antitoxines, *i. e.*, that they are produced from toxines. It is admitted that their peculiar characteristics, chemical and physiological, remain, but that antidotal properties are created from genuine toxic substances. The explanation is not in accord with chemical or physiological laws, and we, therefore, beg leave to enter a demurer and file a caveat against the further use of the word antitoxine with its present significance.

It should be stated in this connection, that no claim is set up against the efficacy of serum-therapy; nor should it be assumed that we take exceptions to the clinical results, because of any possible objectionable after-effects which may result to the patients so treated. The main object of this discussion is to place the subject of serum-therapy in its proper light before the profession. It would be a sad mistake, indeed, for the medical profession to employ blood-serum for ten or fifteen years under the impression that it was an antitoxine, when, in truth, it is a toxine, obtained from a toxic substance, and cannot be prepared without exposure to the air because of the danger of losing its toxic properties. This so-called "antitoxine" differs in no material respect from the remedies above mentioned, opium, potassium chlorate, and corrosive sublimate, and none of these remedies can be given to patients for any time in sufficient dosage to produce constitutional effects with-

out producing irreparable injury to the system.

In view of the foregoing explanation and the previously referred to editorial article, it seems scarcely necessary to continue this discussion further than to point out that the toxic substance when introduced into the system produces changes, some of which we are at present unable to comprehend. It cannot be doubted that it contributes to the production of "defensive proteids," than which none are so efficient as nuclein.

Our regular subscribers will pardon the repetition here relating to the physiological rôle of antitoxine inoculations, but as this special issue will reach a large number of professional men who are not subscribers, it seemed the part of wisdom to lay the matter fully before all readers.

The points to be borne in mind are as follows: 1) That the efficacy of antitoxine inoculations is not doubted; 2) That the method of treatment embraces something entirely different from what is usually understood by antidotal medication, either chemical or physiological; 3) That the real antitoxine is in fact a phosphorized proteid ("defensive proteid") elaborated in the economy through the irritation or leucocytosis set up by the introduction of the toxine derived from the originally toxic properties of diphtheritic secretions, reinforced by preparation in the air.

#### THE NEGATIVE SIDE.

Taking up the map of the United States and examining the course of its rivers, we observe that they run in different directions, due to the physical conformation of the country. A large area of territory would not be properly watered by rivers all running in the same direction. When we come to make a closer examination of the elevation of different points, the contrasts not infrequently create surprise. Thus, not long ago, it was suggested that the two cities of Pittsburg and Cleveland might be connected by means of a canal,



allowing the water from Lake Erie to flow through this proposed canal, finally emptying into the Ohio river near Pittsburg. Insuperable difficulties occurred, however, as it was shown that the city of Pittsburg was about four hundred feet higher than Cleveland, and it would be impossible to make the water run up hill. Does water ever run up hill? Well, yes, apparently, it does, if we take the Mississippi river as an illustration. If the diameter of the earth through the poles is twenty-five miles less than through the equator, and altitude being determined by the exact distance from the centre of the globe, then the mouth of this river must be farther from the centre than is its source in the northern part of the State of Minnesota.

But water does not run up hill. The illustration cited is more apparent than real, but it will serve to emphasize a point we desire to develop in connection with the untenable position assumed by certain critics. We wish to draw a comparison between two opinions held respecting tuberculosis, since it is important that we should take into consideration the different directions in which these mental currents flow. The scientific water-shed is always an important element in calculating the value and permanent character of its literary productions. There is a difference, however, between the physical picture and its mental counterpart, since a man's intellectual horizon is practically what he makes it. While there are elevated tablelands and long ranges of mountains that influence the course of a river, which singularly modify the fertility of the soil, these natural configurations find their counterpart in the rich plateaus and rugged eminences established and kept in a state of perpetual bloom by the intellectual activity of the ages. Critics, objectors and all others who feel impelled to take the negative side must be able to show cause for their criticism and objections. Indeed this is the only way in which true scientific progress can be demonstrated.

The question under consideration is this: What is the cause of tuberculosis? Dr. Charles Denison, of Denver, Colorado (*Climatologist*, Nov. 1894), says, "I have expressed my own belief that the bacillus may not be the beginning, but the after-expression of tuberculosis, *i. e.*, that there are previous septic or changed conditions of the juices of the body which may make the existence of the bacillus possible." Dr. Koonse, of La Fayette, Indiana, in his paper published in the current issue, says, "The lesions known as catarrh, catarrhal pneumonia, broncho-pneumonia and tubercular phthisis are the same and have a common cause—degeneration of the nervous system."

On the one hand, Dr. Denison takes a broad conservative and intelligent view of the question, after sifting and estimating all the testimony thus far brought forward; while on the other, Dr. Koonse discards the evidences which have been presented again and again regarding the presence of the bacillus tuberculosis in almost all tubercular affections. The position of Dr. Denison is unassailable, while that of Dr. Koonse is open to grave objections. For example, if tuberculosis is due simply to nerve degeneration, how does it happen that this condition of affairs remains unnoticed until after serious inroads upon the vitality of the patient? The fact is, that nerve degeneration is but one of the successive steps in this disease; it is, indeed, a step no inconsiderable distance from the incipency of the affection, and is substantially the result of innutrition. If more evidence be wanting, it is forthcoming in the plan of treatment recommended, namely, fats and oils and malt as temporary nerve supporters, together with strychnine in small doses. Although fats and oils and malt have long been regarded as valuable adjuvants in all debilitated conditions of the system, they are not properly classed along with the more active nerve supporters. Strychnine in small doses is a valuable nerve stimulant, but those who use this remedy

should always bear in mind that it is a nerve paralyzer, and that when given in large doses, or too long continued in small doses, its characteristic pathogenic lesions will eventually manifest themselves. The large doses of strychnine so plausibly recommended by Dr. Thomas J. Mays, of Philadelphia, are calculated to do an untold amount of injury.

The idea of employing strychnine in the treatment of pulmonary affections is by no means new, although it has but recently attracted the attention of the medical profession. It was borrowed, with a slight modification, from the teachings of Dr. Burggreave, of Ghent, who introduced Dosimentry more than a quarter of a century ago; but Burggreave was better posted respecting the physiological actions of drugs than his modern imitators, and combined his strychnine with arsenic in the form of the arsenite—like Moran with his paints, he mixed his medicines with brains. Dr. Burggreave was a man who took the negative side, using alkaloids instead of the crude galenicals of that period; but he was easily a quarter of a century ahead of his confreres. This remedy has been often referred to incidentally during the past two and a half years, but at the present rate of appreciation, it will probably be a hundred years more before its true merits begin to be appreciated.

In conclusion then, it should be announced that while we have the greatest respect for those who take the negative side, the claims advanced must have some substantial scientific basis for their support, demonstrable facts being always available in the up-building of science.

#### *HOLIDAY SEASON.*

With this issue the AMERICAN THERAPIST completes its first two and half a years of existence, and the editor and publishers congratulate themselves on the fact that the journal has shown a reason rather than excuse for its inauguration. Instead of confining its work to the reproduction

of formulæ or the repetition of unintelligible empirical gibberish rendered obsolete by the advances of modern science, it has pointed out and located certain landmarks as the foundation-stones of rational therapeutics, swept away the accumulating rubbish of generations and opened up a new path for future investigators.

The Hon. J. Sterling Morton, present Secretary of the Interior, is quoted as recommending that the government of this country spend money in disseminating "new ideas" among the farmers instead of "musty seeds," and this notion aptly applies to the past work of our journal. That we have builded better than we knew, is evidenced by the large number of new subscribers who make requests for the back numbers of the journal in order that they may possess complete files of this most notable record.

The rôle of the reformer is not by any means an enviable one, but thanks to the intelligence, the enthusiasm and the strong individuality of the present generation of physicians, the battle will no longer be fought single-handed. Having secured the confidence, the respect and the active support of a large number of the more intelligent members of the medical profession, the future of the journal is assured and the reason for its existence endorsed.

We cannot close this friendly greeting without a word of appreciation to our advertising patrons, since the financial end of the business is a factor which cannot well be overlooked. The publishers have exercised a commendable discretion in excluding from the advertising pages products objectionable from an ethical point of view, and the editor has endeavored to make a journal that would be sought after by the thoughtful and conscientious physicians because of the help it would afford them in dealing with disease in its multiplicity of phases. And it may be of interest to advertisers to know that this journal is read and kept on file by nearly all of the regular subscribers. We know this because of the frequent demands for

missing copies to complete a set, and also because of the number who wish to have their copies in the form of bound volumes. This is probably the best evidence of the permanent value of our contributions.

To his contributors the editor extends his special thanks for their efficient aid and co-operation in making medical history, in disseminating new ideas instead of musty formulæ, and also for many evidences of personal appreciation and friendship; and to one and all he sends greeting, "A Merry Christmas and A Happy New Year."

### EDITORIAL NOTES.

SCIENCE IN DRUG MANUFACTURING.—Dr. John B. Hamilton, the accomplished and versatile editor of *The Journal* of the American Medical Association, makes a strong plea for science in the manufacture of drugs, claiming that the vast stock of chemical and pharmaceutical knowledge accumulated by the large manufacturing concerns of this country should be made available to the American medical profession. The position and methods of Dr. Squibb are referred to in most flattering terms, the stand he has taken being held up as a model of commercial probity which has already eventuated in distinct gains to scientific medicine.

DANGERS OF ANTITOXINE.—Dr. J. Lindsay Porteous, in a verbal communication, reports that there may be dangers from the use of antitoxine in the treatment of diphtheria. He used it in the case of a male, two injections being made, and both were attended by extensive purpura—around the seat of injection—which disappeared in the course of a few days. Later, however, a most aggravating urticaria developed and the patient suffered intensely. Upon reporting this accident to the manufacturers, they took the number of the phial containing the substance, traced it to a certain horse, and an order was given to have the animal turned out immediately.

The character and physical condition of the animals used will require the most careful attention, since all the animals so far used are more or less subject to peculiar diseases, and the horse is especially subject to glanders. Thus, we can readily see how new diseases might be spread throughout the country. In Paris, for example, all of the old, worn-out car horses have been offered at a nominal figure to the Pasteur Institute for the purpose of manufacturing the antidiphtheritic serum. Now, while it would scarcely be wise to insist that these animals should be thoroughbreds, it is most imperative that their selection should be in the hands of competent persons, and for that reason the source of supply must be an important factor in estimating the results.

THE COLORADO CLIMATOLOGIST.—This is the title of a recent venture in medical journalism, undertaken by a few enterprising physicians of Denver, Colorado, the first number of which has just reached us. It is a twenty-six page, single column quarto, edited by Dr. Charles Manly, with Dr. Josiah N. Hall as associate editor, together with the active co-operation of a number of other physicians located at different points throughout the State. The first number contains several interesting and readable papers, and the journal will no doubt be the means of diffusing a considerable amount of practical information regarding the special attractions of this section of the country for invalids and those in search of health.

The *Yale Medical Journal* hails from under the elms of New Haven; it is published by students of the medical school, and wears a staid, sober and scientific halo. Its two issues so far have been made up well; we wish it success!

Dr. JAMES MOORES BALL, lately of Keokuk, Ia., now of St. Louis, is making a rapid career; he is now professor in a St. Louis College, and besides his *Tri-State Medical Journal* has also assumed editorial control of the *Medical Fortnightly*. A man's capacity for work is only measured by his opportunities—and achievements.

## Therapeutic Memoranda.

**COPPER ARSENITE HYPODERMATICALLY FOR TUBERCULOSIS.**—Notwithstanding the number of contributions to medical literature relating to the value of copper arsenite in various affections, the profession still seem to regard its range of activity limited to intestinal disorders. They appear to overlook the fact that any medicament which possesses therapeutic virtues in counteracting derangements confined to the alimentary tract ought also to be useful for its constitutional effect, since it has been shown repeatedly that copper arsenite through its irritant action upon cell function contributes to the restoration of tissue metamorphosis. Introduced into the circulation, it is probably split up by combination with the salts in the blood; but Nature proceeds at once to eliminate these foreign substances, principally through the liver, and to a great extent through the intestinal mucous membrane. The arsenic in the combination doubtless acts as an arsenite (arsenite of potassium or sodium), which, in small doses, enacts the rôle of a stimulant, promoting reconstructive metamorphosis, and either directly or indirectly we observe marked effects upon the nervous system. In addition, however, we must not lose sight of the valuable antiseptic properties possessed by the drug, as when taken by the mouth it is converted by the acid juices of the stomach into the chlor-arsenite of copper. Physiologists tell us that copper in lethal doses causes distension of the intestine, just the opposite effect produced by lead poisoning, and we are thus led to conclude that elimination probably takes place through these structures, as in the case of arsenic and its salts. This affords what may be termed a bird's-eye view of the physiological rôle of copper arsenite in a general way, but it does not include the changes which small doses produce upon tissue metabolism, through its influence upon the protoplasm; that can only be

estimated by the effects of its administration—clinical results preceding physiological demonstration. Evidently, like other remedies of this class, its therapeutic properties are due mainly to its toxic properties. Arsenic itself was originally extolled because of its known toxic effects upon the animal organism, a celebrated early author announcing that arsenic being the greatest poison, it would naturally follow that it must be the most powerful remedy.

Given hypodermatically, copper arsenite is a most efficacious remedy in the initial or incipient manifestations of pulmonary tuberculosis. The writer has just been forcibly reminded of this peculiarity by a recent visit from a patient who in 1890 and 1891 presented unmistakable evidences of this disease, and if confirmatory proofs were demanded, there was a history of two older brothers dying from the disorder. This patient is but one out a number treated in the same manner during the period mentioned, and all with good results,—except one case, and in this instance the patient objected to the treatment. The result, it is hardly necessary to say, was fatal, although the creosote treatment was faithfully carried out.

The case referred to has been under observation from time to time since hypodermatic medication was discontinued in the autumn of 1891, and although he is subject to autumnal catarrh, and has had two mild attacks of influenza, there has been no indication that the tubercular affection had been rekindled, the temperature and pulse-rate remaining normal. It should be mentioned, however, that this patient, a young man aged twenty-three, took a trip to Colorado and Northern California during the winter of 1891-1892, returning after an absence of four months greatly improved in health and general appearance; he had gained in weight about thirty pounds, notwithstanding two attacks of "mountain fever" in Colorado.

The clinical history is briefly as follows: In May, 1891, the temperature ranged from 99° F. to 101° F. in the morning,

and from 101° F. to 103° F. in the evening; the pulse-rate varied from 96 to 120, and a cavity was plainly detected in the upper lobe of the right lung. The characteristic expectoration was also present; there was pain in the chest, poor appetite, night-sweats, and considerable emaciation.

Treatment consisted in the administration of the chlor-arsenite of copper, one millegram on alterante days, together with the exhibition of small doses of creosote and strychnine arsenite, and a regulated diet. The latter medication was simply continued just as before beginning the hypodermatic medication, varied from time to time to meet the conditions present. No perceptible change was noticeable for about two weeks, when the patient began to remark how much better he felt. The high temperature had been reduced, the accelerated pulse slowed, the appetite improved, the night-sweats arrested and a decidedly better condition of the bowels established. The injections were then continued twice a week for a period of about two months, after which creosote alone in moderate doses constituted the treatment for several months longer.

The method of preparing the chlor-arsenite of copper is as follows: A tablet containing one grain of copper arsenite is dissolved as far as possible in four ounces of hot water that has been boiled; to this is added drop doses of dilute hydrochloric acid, the mixture being frequently shaken, until the green coloration disappears. This solution when filtered is ready for use, thirty minims (one syringe-full) carrying approximately one-sixty-fifth of a grain. When patients complain of the pain attending the injection, a single drop of a four per-cent. solution of cocaine hydrochlorate will be found quite sufficient to allay any irritation. The injection is preferably made between the scapulæ into the subcutaneous cellular tissues, and when proper antiseptic precautions are observed no danger need be feared from abscesses; indeed, the writer has never met with a single abscess. When properly corked the solution remains permanent for several months.

**RHUS TOXICODENDRON.**—Attempts to disparage or cast doubt upon the therapeutic properties of rhus toxicodendron should be discouraged. The suggestion that it is of doubtful utility because not popular with so-called "regulars," is a flimsy excuse. The facts are that it was first used and recommended by regular physicians in England and France as early as 1798, and was official in the British Pharmacopœia in 1836, but owing to faulty methods of preparation it fell into disuse. Like horse-radish, much of the active principle (toxicodendric acid) is lost in drying, hence a tincture made from the dried leaves, is practically worthless. To obtain an effective product, the leaves must be gathered in the spring, about flowering time; and Dr. Eccles says, those which are found growing in the shade are best. The collection should be immediately placed in alcohol, according to the directions of the U. S. P. for the making of tinctures from green herbs. A tincture prepared in the manner indicated will frequently be found effective in the course of twenty-four hours, after the absolute failure of numerous other remedies extending over a period of weeks.

Dr. Whelpley, (*Louisville Medical Monthly*, Dec. 1894) reports that Wilcox claims it is dangerous and probably useless. If Wilcox said this, he simply repeated what had been said by Dr. H. C. Wood, (*U. S. Disp.*, 16th ed., 1888, p. 1299). Referring to the last edition of the same work (1894), we must infer that Dr. Wood has materially changed his opinion; at least he does not now regard that tincture as dangerous, since he states that he made extended trials upon a large number of cases of subacute, chronic and acute rheumatism, but was not able to perceive that patients thus treated progressed more rapidly than when they were simply nursed. A note must be made of the fact that these experiments with this "dangerous and useless" remedy were made in the Philadelphia Hospital (Blockley Almshouse). On retiring

from the editorial chair of the *Therapeutic Gazette*, some years ago, Dr. Wood took the opportunity of condemning this drug in unmeasured terms, in the form of a note to a paper contributed by Dr. Carpenter, of Leavenworth, Kansas. One of the cases reported was that of an elderly lady who had long suffered from some chronic rheumatic affection in one of the shoulders, for which the approved medicaments had been exhausted. Dr. Carpenter gave one-sixteenth of a drop as a dose, and on the following morning the patient felt free to move her arm in all directions without pain.

A word in regard to the specific indication for rhus toxicodendron. It affects especially the fibrous and serous structures of the body, the sheath and tendon of muscles, the synovial membranes, peritoneum and brain coverings, and is especially indicated when there are evidences of passive congestion, local or constitutional. All the structures mentioned being particularly susceptible to poisonous products in the circulation, it follows of course, that this poison will be brought into direct contact with them. If the dose be small or moderate, the stimulant effect of the poison follows, the tissue-change being augmented, waste products eliminated and relief afforded.

**NUCLEIN SOLUTION IN DIPHTHERITIC SORE THROAT.**—In connection with the elaborate and promising investigations now going on with reference to the therapeutic virtues of the antitoxine treatment of diphtheria, the following clinical note giving an account of what may be termed an illustrative case ought to be of interest. The word diphtheritic is used because no bacteriological examination was made, but this is really of no consequence, since the mortality is about as great in cases of pseudo-diphtheria as in true diphtheria. A note should also be made of the fact that in cases of true diphtheria, or in cases of mixed infection, the antitoxine solutions are of no avail.

The patient was a young lady upwards of thirty, and was apparently in good health until Sunday, December 9, 1894. During the afternoon of this day she began to experience some soreness in the throat, difficulty in swallowing, and had no appetite for supper. There appeared to be some fever in the evening and she spent a restless night. This patient was seen for the first time about ten o'clock Monday morning, at which time the pulse-rate was 108, temperature 101° F., and the respiration slightly accelerated. Examination of the throat discovered abundant exudation posteriorly on both sides of the pharynx, extending also some distance over the posterior pillars, but no "spots" on the tonsils. In the central portion of the pharyngeal space were seen two distinct elevations, dark and granular-looking, so that the exudation threatened to spread until the entire pharyngeal space was covered. There were no indications of obstruction to nasal breathing. A marked feature of this case was the profound depression, the pulse being small, weak and compressible. The tongue was moderately coated with a brown fur, and appetite was wanting.

Medicinal treatment consisted in the administration of nuclein solution in one-drop doses, dissolved in a teaspoonful of water, to be given every hour, the mouth to be washed out at intervals of two hours with hot water to which a small quantity of table salt was added. Nourishment included the liberal use of beef-tea or hot milk, with a little table salt in it, at intervals of two hours while awake.

At the end of the first twenty-four hours, the pulse-rate had been reduced to 84 per minute, the temperature was 99° F., and the respirations normal. The patient had a good night, having slept well, and had taken nourishment in sufficient quantity, including a soft boiled egg for breakfast. The appearance of the tongue had also improved, and the only remaining evidence of membrane consisted of one small exudation about the size of a split pea just

back of the left tonsil. Indeed, such a remarkable transformation had taken place that the patient seemed surprised when told that it would not be policy to get up and dress. The amount of the solution employed in twenty-four hours was about twelve drops, and no other medication. The membrane began to loosen in from four to six hours and came away in flakes when hot salt water was used, leaving a fairly healthy looking mucous membrane. The same treatment was continued, one-third minim being given in the form of tablets every two hours.

The foregoing description tallies with a large number that have come under the observation of the writer during the past two winters, probably not less than fifty, where the treatment has varied but little, and the results were substantially the same as here recorded. In cases of tonsillitis, a second visit is rarely required, except for the purpose of satisfying the patient or the relatives that all is going on in a satisfactory manner.

**NUCLEIN SOLUTION TO ABORT TYPHOID FEVER.**—In a verbal communication to the writer, Dr. A. M. Boyer, of Philadelphia, a careful and conscientious observer, said he had now some doubts as whether or not he had in all his experience of more than twenty-five years seen a genuine case of typhoid fever. Since the latter part of last April, he says, he has treated dozens of cases which, to him, and according to the books, presented all the characteristic symptoms of typhoid fever, including the coated tongue, malaise, pain in the iliac fossa, rose-colored spots, looseness of the bowels with the peculiar yellow stools. Some of the patients had been sick for a day or two; others for several days or a week, and according to the history, objective symptoms, pulse-rate and temperature record, were properly classed as typhoid fever.

Treatment of these cases consisted in the administration of small doses of copper arsenite and the exhibition of nuclein

solution, of the latter about half a dozen tablets daily (each containing approximately one-third minim), dissolved in water and taken in divided portions at intervals of two hours. Without an exception, the characteristic typhoid symptoms all disappeared within forty-eight hours. Although the patients were sick, debilitated, and suffered from more or less looseness of the bowels—some for a few days, others for a week or more—the genuine typhoid fever never fully manifested itself, and all recovered.

Dr. Boyer says, at first he was inclined to believe that the recoveries were mere coincidences, but when the same class of cases that he had frequently seen develop typhoid fever in previous years got well one after another in the course of a few days or a week, it seemed incredible.

**NUCLEIN IN MALARIA, TYPHOID FEVER AND TUBERCULOSIS.**—From an interesting and suggestive communication on nuclein, presented to the Louisville Medico-Chirurgical Society, October 26, 1894, by Professor Frank C. Wilson (*American Practitioner and News*), we make the following extract: "I have for some months been much interested in the journal accounts of the use of nuclein, and I have myself been using it with gratifying results in a variety of cases and with almost uniformly good results. In several cases of malarial fever its effect has been prompt and decided. In a number of cases of convalescence from typhoid fever the rapid improvement following its administration has been noteworthy. In tuberculosis a marked amelioration in many of the symptoms, such as cough and expectoration, followed its administration, and the patients expressed themselves as feeling better. If the conclusions deduced by Huber from his experiments be true, that the subcutaneous injection of nuclein increases the number of white blood corpuscles, then we may have in this method of treatment a valuable adjunct in combating tuberculosis in its initial stage. If what I have said will awaken an interest in nuclein it will have served its purpose. I shall continue to use it, and hope at some future time to take occasion to tabulate and analyze the cases in which I have used it."

## Book Notices.

**LANDMARKS IN GYNECOLOGY.** By BYRON ROBINSON, B.S., M.D., Professor of Gynecology in the Chicago Post-Graduate School, etc. Paper, 12mo., two vols., pp. 207. Detroit: GEORGE S. DAVIS, 1894. (Price, 25 cents each.)

According to our author, the landmarks in gynecology are as follows: Anatomy, menstruation, labor, abortion, gonorrhea, and tumor. The work is written in an entertaining style, although it is strictly in the line of modern research in this department of medical science. Its chief virtues lie in the fact of its condensation without seriously destroying the practical character of its teachings, and it will therefore prove most acceptable to general practitioners who wish to keep up with the latest investigations in this work. A half hour can be very profitable spent in glancing over these small volumes, and the expense is no bar to their possession.

**MODERN MATERIA MEDICA:** For Medical Men, Pharmacists, and Students. By H. HELBIG, F.C.S. Fourth enlarged edition. Cloth, 12mo., pp. 305. New York: LEHN & FINK, 1894. (Price, \$2.00.)

The present is much larger than any former edition, but it contains no padding. The book appears, too, at a very opportune time, since we are now at a turning point in rational therapeutics, and it is believed the author of this excellent work will not be slow to appreciate the change which promises. It will undoubtedly prove a prominent landmark in separating the old from the new, because it covers the numerous topics in a manner that is altogether appropriate, considered from either the practical or scientific standpoint.

A better idea of the general character of the work may be obtained from the following brief outline of a single topic. Opening the book at random, we have "benzozol." The synonym is given; a brief note follows on its preparation; an account of its physiological and chemical

properties is embraced in twenty-five lines, and over a page is occupied in describing its medicinal uses, the entire article being embraced in a little over two pages. The book is recent, but it has the added advantage of being reliable, and must prove welcome to the teacher and author as well as the student and practitioner.

**A SYNOPSIS OF THE PRACTICE OF MEDICINE.** By WILLIAM BLAIR STEWART, A.M., M.D., Lecturer on Therapeutics, Medico-Chirurgical College of Philadelphia, etc. Cloth, 8vo., pp. 433. New York: E. B. TREAT, 1894. (Price, \$2.75.)

Although Dr. Stewart's work presents the appearance of a compilation, it is by no means a re-hash of what has hitherto been offered to the medical profession as mental pabulum. While the etiology, pathology, symptomatology, diagnosis, and prognosis do not fully afford our author opportunities for inserting or imprinting upon the book the indications of his clear and practical judgment, the subject of treatment furnishes an opportunity of bringing to the front the evidences of his ability to properly grasp a most comprehensive and complicated problem. We do not mean by this that the book is radically different from any that have preceded it, but that its teachings carry you along naturally, by reason of the convincing character of the arguments, but our author deems discretion the better part of wisdom and stops at the point of conjecture. It will prove a boon to the rising generation, and we bespeak for it a favorable reception at the hands of the younger members of the profession.

**THE PHYSICIAN'S VISITING LIST FOR 1895.** Philadelphia: P. BLAKISTON, SON & Co., 1894. (Price, roan, \$1.00.)

This convenient little memorandum book has now reached the 44th year of publication, and judging from the contents of the present edition, its popularity will increase. In addition to the usual blank pages ruled for records, it contains among



other interesting items, the metric system, a table for converting the metric weights and measures into apothecaries' weight, a posological table, a dose table, a list of new remedies, a note on incompatibility, a note on poisons and antidotes, a note on disinfection, and directions for urinary examinations.

### PUBLICATIONS RECEIVED.

Chancres of the Mouth, and local treatment for syphilitic manifestations of the throat. By E. HARRISON GRIFFIN, M.D., of Chicago. Reprint, 1891-92.

The Treatment for Radical Cure of Polypi of the Nose. By E. HARRISON GRIFFIN, M.D., of Chicago. Reprint, 1890.

Abscess of the Antrum of Highmore, with cases and their treatment. By E. HARRISON GRIFFIN, M.D., of Chicago. Reprint, 1894.

Spindle-cell Sarcoma and Epithelioma: A report of cases. By W. BLAIR STEWART, M.D., of Atlantic City, N. J. Reprint, 1894.

Diseases of the Alimentary Canal. Treatment: Internal and external hydrotherapy. By JAMES OSBOURNE DECOURCY, M.D., of St. Libory, Ills. Reprint, 1894.

Incipient Inflammations of the Ear in Early Life, and their Sequela. By S. MCCUEN SMITH, M.D., of Philadelphia. Reprint, 1894.

Uterine Fibroids. By CHARLES P. NOBLE, M.D., of Philadelphia. Reprint, 1894.

Symphiseotomy vs. the Induction of Premature Labor. By CHARLES P. NOBLE, M.D., of Philadelphia. Reprint, 1894.

Prophylaxis in the Treatment of Tuberculosis By LAWRENCE F. FLICK, M.D., of Philadelphia. Reprint, 1894.

Ectopic Gestation and Antelexion. By E. E. MONTGOMERY, M.D., of Philadelphia. Reprint, 1894.

Typhoid Fever. By J. L. NAPIER, M.D., of Blenheim, S. C. Reprint, no date.

Hypermetropia and Heterotropia. By HOWARD F. HANSELL, M.D., of Philadelphia. Reprint, 1894.

A Plea for more Patience in the Care and Treatment of Infantile Reproductive Organs in the Female, with notes and three cases. By HOMER C. BLOOM, M.D., of Philadelphia. Reprint, 1894.

Deformities of the Face and Orthopedics. By FRANK L. R. TETAMORE, M.D., of New York. Reprint, no date.

The Conservative Treatment of the Female Pelvic Organs. By WILLIAM GOODELL, M.D., of Philadelphia. Reprint, 1894.

The Treatment of Fibroid Tumors of the Uterus. By GEORGE H. ROHE, M.D., of Baltimore, Md. Reprint, 1890.

Chairman's Address. By JOSEPH EASTMAN, M.D., of Indianapolis, Ind. Reprint, 1894.

An Introductory Address to the Students of the Medico-Chirurgical College. By L. WEBSTER FOX, M.D., of Philadelphia. Reprint, 1894.

The Therapeutical Applications of Peroxide of Hydrogen (Medicinal), Glycozone and Hydrozone. By CHARLES MARCHAND, Chemist. New York, 1894.

Morphinism in Medical Men. By J. B. MATTISON, M.D., of Brooklyn. Reprint, 1894.

The Modern and Humanic Treatment of the Morphine Disease. By J. B. MATTISON, M.D., of Brooklyn. Reprint, 1893.

Evisceration of the Eye-ball. By L. WEBSTER FOX, M.D., of Philadelphia. Reprint, 1894.

Hygiene of the Eye. By L. WEBSTER FOX, M.D., of Philadelphia. Reprint, 1894.

Immediate Capsulotomy following the removal of Cataract. By L. WEBSTER FOX, M.D., of Philadelphia. Reprint, 1894.

Internal Hemorrhoids. By EUGENE F. HOYT, M.D., of New York. No date.

From J. T. ESKRIDGE, M.D., of Denver, Colorado.

Traumatic Myelitis. Reprint, 1892.

Report of Cases of Moral Imbecility, of the opium-habit and of feigning, in which forgery is the offense committed. Reprint, 1893.

Tumor of the Brain simulating a vascular lesion. Reprint, 1894.

Expert Witnesses. Reprint, 1892.

Trephining in three Cases of Epilepsy: Two of the Jacksonian variety; one due to old meningeal hemorrhage; improvement. Reprint, 1894.

Syringo-Myelia. Reprint, no date.

Tumor of the Cerebellum. Reprint, 1893.

Bilateral Cerebral Thrombosis, due to syphilitic arteritis. Reprint, 1894.

Fracture of the Skull: Trephining Retro-antegrade amnesia; recovery; death one month subsequently from other causes; autopsy. Reprint, 1894.

Polio-Myelitis. Reprint, no date.

A Clinical Lecture: Polio-melitis; chorea; sacroiliac arthritis. Reprint, 1893.

Sarcoma of the Pia and Brain, stimulating brain tumor; mono-spasm and mono-paresis; operation. Death on the third day. Reprint, 1893.

Some Points in the Diagnosis and Treatment of Intra-cerebral Hemorrhage, and in the treatment of chorea. Reprint, 1893.

Neuralgia of the Right Cranial Nerve of Sixteen Years' Duration: Excision of the three divisions at the gasserian ganglion; death. Reprint, 1894.

Dr. F. L. SIM, editor of the *Memphis Medical Monthly*, died at his home, in November, shortly after his return from a Southern trip. His monthly will be continued, and the December issue has already appeared with a new editor.

From Portland, Me., we have received the first number of the *Journal of Medicine and Science*, the official organ of the Maine Academy of Medicine. It looks good, and may develop despite the "organ" handicap.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,  
WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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No. 7.

## Original Articles.

### *RETAINED RECTAL INJECTIONS OF WATER.\**

By WILLIAM H. FAULDS, M.D.

I desire to ask your indulgence while discussing what is believed to be some of the uses of retained rectal injections of water. We all know something of the therapeutic value of rectal medication, rectal alimentation, the flooding of the colon with large enemata, the use of the cold or tepid bath in typhoid fever, scarlet fever, and many other diseases, in which for centuries it has been employed; but, so far as I know, the use of retained rectal injections of water as a means of supplying water to the tissues, and of stimulating the action of other organs, has received but little consideration at the hands of the profession, and, up to six months ago, I never saw anything in medical literature bearing upon this subject.

My first experience in this direction was about three years ago when I was called to attend a lady who, I believed, was suffering from impacted feces, with probably some appendicitis. There was an enlargement over the ilio-cecal valve, and obstinate constipation, which cathartics and rectal injections, as ordinarily administered, failed to remove. While giving large rectal injections of water without benefit, the thought occurred to me that if I could introduce into the system through the bowels a quantity of water sufficient to saturate the tissues, it might,

by being poured back again into the intestine, so soften the hardened mass as to facilitate its passage through the intestinal tract and thus bring about the desired result. The presence, too, of an unusual quantity of water in the tissues, would also have a soothing effect upon the inflamed appendix, and thus a two-fold object might be gained.

I accordingly introduced into the colon, one pint of tepid water every three hours, the whole of which was retained. In about twenty-four hours there was a discharge of liquid feces; soon the tumor decreased in size, the pain and vomiting ceased, and in about ten days she was convalescent, and although three years have elapsed since that time, there has been no recurrence of the trouble.

The next case in which I remember using this remedy was one of puerperal convulsions. The woman was delivered and the convulsions had ceased, but she was so comatose that the eye-balls were insensitive to the touch; temperature, 105° F., pulse, 120. The urine contained a large proportion of albumin, and only about two ounces had been passed during the preceding twenty-four hours. The patient was unable to swallow, except in very small quantities, and at times not at all. Thinking that water injected in the bowel might stimulate the kidneys, or flush them, as it were, I took two ounces of whiskey with water sufficient to make one quart and injected this into the bowel. This injection was repeated at intervals of three hours. After four injections the temperature was reduced to normal, the patient was conscious, and the bladder contained one pint of urine. The patient made a good recovery.

\* Read before Luzerne County Medical Society, October 17, 1894, and contributed to the AMERICAN THERAPIST.

The next case that I recall was also one of puerperal convulsions. When I reached the patient she was having her fourth convulsion and from this passed into a condition of profound coma. During manual dilatation of the os and high forceps delivery, which lasted nearly two hours, there was scarcely any indication of suffering on the part of the patient, and delivery was accomplished almost without an anesthetic. She had several convulsions during, and four after delivery.

The continuance of the convulsions after delivery, the deep coma, weak pulse and almost total suppression of urine, made the out-look, to say the least, not very encouraging. As soon as delivery was accomplished, we administered a rectal injection of water, chloral hydrate and whiskey. This was repeated at intervals of three hours, omitting the chloral and whiskey unless indicated. The injections were continued for fifteen hours, when the urinary secretion was re-established, consciousness returned and the patient went on to complete recovery.

Case four was one of typhoid fever. The patient was in the second week of his illness, and the case was progressing favorably with a morning temperature of 100° F., and evening rise of one or two degrees, when he was suddenly attacked with a severe pain in the bowels along with a sudden rise of temperature. His physician remained with him several hours, fearing that perforation of the bowel had occurred. Fortunately, however, under the use of opiates and warm applications to the abdomen, the pain subsided. As the patient had been constipated most of the time during his illness, his attending physician was of the opinion that the pain was probably due to the presence of hardened feces at the seat of ulceration of Peyer's glands, which was undoubtedly a reasonable supposition. But now the important question to decide was, whether a cathartic should be given (he had already emptied the lower bowel by a small rectal enema), or trust to na-

ture. We reasoned in this way: If we allow the hardened mass of feces to remain for any length of time in contact with the diseased Peyer's glands, there is a possibility of not only increasing the ulceration of these glands, but there may also be the danger, when the hardened feces are forced along by the peristaltic action of the intestine, of tearing open the ulcerated surfaces sufficient to produce perforation or hemorrhage. On the other hand, to give cathartic medicine sufficient to soften the fecal mass may induce severe peristalsis, and in this way increase the intestinal ulceration, subjecting him to still greater risks than if the case is left to Nature.

Just at this point the rectal injections of water with a small dose of morphine were suggested, believing that the presence of the warm water in the bowel would be soothing to the intestinal tract, and that its absorption would, in all probability, so soften the hardened contents of the bowel as to cause them to pass harmlessly over the diseased surfaces. The suggestion was followed, and after twenty-four hours' use of the rectal injection of water, there was a soft, natural evacuation; the tympanites, which had increased during the attack of pain soon subsided; the temperature fell, and although it was about ten days before the temperature remained normal during the twenty-four hours, there was no recurrence of the pain.

The rectal injections were administered every three hours until no longer indicated, and the patient was comfortably sick during the succeeding ten days that he remained in bed.

Encouraged by my success in the treatment of these cases, I have since used the remedy in cholera infantum, dysentery, shock, metritis, peritonitis, indigestion, to relieve excessive thirst; in the collapse following severe attacks of cholera morbus, etc.; the indication being to supply the system with a larger quantity of fluid than could possibly be absorbed by the stomach; and in cases in which, from

any cause, the system had been suddenly deprived of a large quantity of watery fluid.

We all know that in cases of cholera infantum, or more properly, cases of acute indigestion following the ingestion of too large quantities of milk, the sudden draining of the fluids of the body often causes sudden and fatal collapse, and when from the loss of blood-serum the brain is deprived of its blood-supply, convulsions come on, often terminating fatally in a few hours.

The severe vomiting, frequent watery stools, pallid countenance, weak pulse, cold extremities, profuse cold perspiration, convulsive twitching of the muscles, and rolling of the eye-balls seen in cases of acute indigestion, caused probably by ptomaine poisoning, is a clinical picture familiar to almost every practitioner, and one which, I believe, may be most quickly and successfully met by rectal injections of stimulants and warm water.

In dysentery, instead of washing out the colon with large enemata, as has been recommended, I believe a more rational procedure is to inject only such quantity as the patient can retain, say from four to six ounces of water, to which a small quantity of alum and morphine have been added. This, retained, has a soothing effect upon the inflamed mucous membrane, changes the character of the stools, and relieves the tormina and tenesmus in so short a time as to leave no doubt in the mind of the attendant concerning its value. Even very small children retain the injections and improve rapidly under their use.

Again, in peritonitis and metritis, nothing is so soothing to the abdomen and viscera as a small rectal enemata of warm water retained and repeated at intervals of three hours; and nothing so quickly relieves excessive thirst from any cause as this seldom-thought-of remedy. In collapse following cholera morbus of adults, rectal injections of warm water and alcoholic stimulants in quantities that can be re-

tained, meet the indications more quickly and effectually than any other remedy of which I have any knowledge.

In cases of dyspepsia, in which the desire for water is so often restrained rather than encouraged, the blood poor and the eliminative organs torpid, the interchange of blood and tissue delayed for want of a proper supply of fluid, the stomach so small that it will scarcely hold a teacupful of food and liquid combined, caused by years of dieting and abstinence from sufficient liquids to distend the stomach so as to give it the capacity Nature intended it should have in order to supply to the system the amount of nutriment necessary to good health—in other words, when the stomach is so weakened that it is impossible for it to absorb sufficient liquid to keep the blood pure and the nervous system and eliminative organs in a healthy condition, then it is that rational therapeutics suggests the introduction of water through the intestinal canal in quantities sufficient to stimulate the absorbents, flush the torpid liver and kidneys and, at the same time, supply to the blood sufficient liquid to maintain in a healthy condition that most important of all forces of life—the nervous system.

When we remember that three-fourths of the human body is water, the importance of this agent in the processes of nutrition at once becomes apparent; and knowing, as we do, that a large number of even intelligent people avoid drinking water in large quantities, believing it to be harmful, is it at all surprising that we find so many persons, especially those leading a sedentary life, suffering from constipation, torpid liver, indigestion, inactivity of the kidneys, all leading to Bright's disease, nervous derangement due to the retention of effete matter in the system, and a poor condition of the blood, and all due, either directly or indirectly, to the want of a plentiful supply of pure water. On the other hand, is it not just as surprising, in view of the importance we attach to the use of the bath and the nutritive value of food, that we have not given greater attention to the proper use of this most important of all the elements of nutrition—water, and the means by which, in diseased conditions, it may be most advantageously supplied to the system?

Luzerne, Penn.

**NASO-PHARYNGEAL FIBROID.**

WITH REPORT OF A CASE.

By JOHN E. BACON, M. D.

Fibroid tumors of the pharynx are comparatively rare. They are usually met with in young males, though during the last five years a number of cases have been reported as occurring in females. The growth is usually seen between the ages of 10 and 25 years, and according to some observers, appears to tend to spontaneous cure after the latter age—but this statement has been questioned of late by many well known authorities; the damage to adjacent parts resulting from presence during any considerable period of time, would urgently demand early and energetic treatment. These growths are either true fibromata, arising from the vault of the pharynx from right or left of the median line, and attached to other parts of the retro-nasal space by adhesions only, or fibromucous polypi, arising from any part of the vault, most commonly from the anterior near the posterior naris, and may be attached partly to intra-nasal structures. The latter variety of post-nasal fibroid is probably most common, and is oftener met with in females than true fibromata.

Since the report of Dr. R. P. Lincoln, of New York, on this subject, in which the frightful mortality of the extensive operations for the removal of the growth

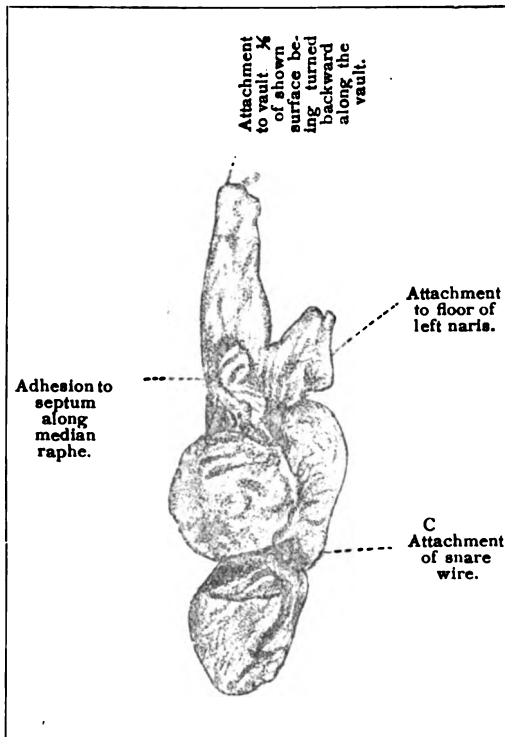
was compared with the results of operations through the natural passages, the general tendency has been to less radical surgery; and the many reports of successful operations by ecraseur, forceps, and galvano-cautery have justified the change. There can be no doubt but that there are fewer recurrences reported following these measures than formerly occurred, the credit for which belongs partly to the better operations, and partly to the wonderful advance in knowledge of the pathology and appropriate treatment of these diseases which has taken place in the last half decade. The following case

is remarkable for the early age at which the growth manifested itself, and the complete success of the treatment:

Frank P., aged 10, was brought to me by his family's regular medical attendant, in May, 1894. Family history — Negative.

*Personal History.*—Patient never was seriously sick, but at the age of five years developed nasal obstruction, and a mucoid polyp was removed from the left naris by a general practitioner, with some relief. The patient then became a mouth-breather, and did not grow well, became thin and

poorly nourished, and had nose-bleed at intervals. Two years ago a tumor was discovered appearing in the throat below the soft palate. Various attempts at removal failed, and various forms of treatment were tried, including puncture, and injection of drugs by means of a hypodermatic syringe. The patient at the time he was brought to me had the typical appearance of a mouth-breather, the mouth being partly open, angles effaced and cheeks thin. He had a thick voice, and a generally drowsy air.



*Examination.*—Left naris roomy; some congestion of turbinated bodies, which contracted well under 4 per cent. solution of cocaine; some thick mucoid secretion, and signs of last nose-bleed. Posteriorly, through the nose, the tumor could be seen indistinctly moving readily when the patient swallowed. Right naris much the same, but not so roomy. Throat presented a normal appearance, but for the tumor, which could be seen hanging about one-half inch below the soft palate. The faucial tonsils were normal, and there was a very little congestion or secretion on the walls of the pharynx posterior of the tumor. Digital palpation revealed that the growth was attached by a pedicle to the vault, and that a projection also attached it to the floor, or inferior turbinated body of the left naris; it also was pressed tightly against the septum, and appeared to be attached thereto, but probably was not.

Extirpation being advised and consented to, under cocaine anesthesia, a Jarvis ecraseur was passed through the right nostril, one end of the wire being left free; by paying it out into the pharynx the loop appeared in the throat. This was now made to encircle the growth, and was pushed well up to the pedicle posteriorly; but either the wire slipped down again, or was prevented from rising up anteriorly by the adhesion to the septum, for on tightening the wire it was seen only to include the lower part of the growth as noted in the cut, at the point marked C. It was decided to separate this piece, and pass the wire again, but the wire could not be forced through the growth; it did not even abrade its surface though strong forceps were employed to turn the milled nut, and the instrument was ruined. The wire now being removed, I noted from the hemorrhage that the attachment in left nostril had been loosened as well as the adhesion to the septum, so a pair of Loewenberg's forceps was passed, and, grasping the growth high up, steady traction brought it away entire. Hemorrhage was very free, but soon ceased, and

examination showed the vault clear. The point of attachment was slightly to the left of the median line in the vault, and appeared as a raw surface somewhat below the level of the surrounding membrane. The spot was cauterized, and the case treated by irrigation with a mild alkaline, antiseptic solution and insufflations of aristol. The spot healed kindly, and cannot now be seen to be any different from the rest of the vault, and the patient is in perfect health, the voice having its normal resonance. The face is like a new one, it is so different in appearance. I think the growth was a fibro-mucoid polyp. It was very hard, three inches long, and weighed fresh 420 grains. The patient suffered no pain after the operation, and nasal respiration is completely restored.

Wellsboro, Penn.

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### PLACENTA PREVIA.\*

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By J. M. KRIM, M. D., Louisville, Ky.

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Three weeks ago a lady consulted me, at about the eighth month of utero gestation, on account of some bleeding that had existed for two months. When she remained perfectly quiet, the hemorrhage would cease, but upon the least exertion it would return. At the time she came to the office, she had been bleeding for three days, and apparently it was getting worse. She was very anemic, not weighing probably over ninety pounds.

Upon examination I found the lower extremities edematous up to the hips. I questioned her regarding this condition, and she said that she had been the same in her two previous pregnancies, and it did not amount to anything, as she thought. On further examination I suspected placenta previa existing. I advised her to go home and remain perfectly quiet, and if she grew worse to telephone me.

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\* Read before the Louisville Clinical Society, and contributed to the AMERICAN THERAPIST.

The next morning I received a telephone message to come immediately. I found there was considerable hemorrhage; the os was partially dilated, and upon examination, as suspected, I found there was a placenta previa. I then introduced a tampon, as there were no active pains at the time, and remained there for two hours; still no pains came on. I removed the tampon and found that the bleeding had partly ceased. I again introduced the tampon and told her to keep perfectly quiet, that I would be back in a short time. Two hours later, on returning, I found that pains had come on; the os was a little larger, large enough to explore a little further up into the uterus. I told the husband he had better send for some one to assist me in the case. Dr. Veech being the nearest physician, he was sent for, and we administered chloroform. I loosened up the placenta as far as I could reach, and found that the os was not fairly dilated, not enough to warrant rupturing the membranes. I used a Barnes' bag to dilate, and evidently used too much water, as it burst. However, by means of my fingers, sufficient dilatation was produced to enable me to rupture the membranes, and I found a foot presentation.

Delivery was now accomplished very rapidly. The child was found asphyxiated and could not be resuscitated. Considerable hemorrhage came on afterward. The placenta was removed as speedily as possible, ergotole employed hypodermatically, but the patient was sinking very rapidly and I feared she would die before other assistance arrived. I told them to go to the nearest office and telephone for another physician, but in the meantime used aromatic spirits of ammonia and digitalin, and she revived to some extent. The pulse became perceptible, and the uterus was evidently contracting, but not sufficiently. By the use of cold applications externally, and ice in the uterus, with injections of ergotole, the bleeding was controlled. I remained four hours,

when I thought the uterus was perfectly contracted; at least there was no more bleeding, and the uterus was apparently firm.

I left Dr. Veech in charge, and made a few other visits. Returning again in two hours I found that the uterus had become considerably distended, but there was no hemorrhage. I made an examination and found a clot. I dilated the os again and found a considerable clot, which was removed at once and the uterus thoroughly flushed with hot water. The organ contracted firmly, and so remained.

About four hours later convulsions occurred, which could only be controlled by the use of chloroform. The pulse became very slow and scarcely perceptible. Under the use of aromatic spirits of ammonia and digitalin she finally rallied again; still, if we ceased giving chloroform convulsions would supervene. We injected one-half drachm chloral per rectum, which controlled the spasms to some extent.

The patient had not passed any urine since before the delivery; I used a catheter and found only about an ounce of urine in the bladder. After she had become quiet I again introduced the catheter, but could get no urine. I still used digitalin and whiskey with aromatic spirits of ammonia. The pulse became fairly good, still convulsions continued at intervals for eight hours, and there was no urine in the bladder. I resorted to pilocarpine and the warm pack, and continued the use of aromatic spirits of ammonia and digitalin to keep up the heart's action. The patient finally rallied, and now, three weeks since the delivery, is still alive, but in a very precarious condition. The kidneys are not acting as they should. She passes about a half-pint of urine in twenty-four hours. The pulse is now sixty.

This was the third pregnancy, and the patient stated that the same edematous condition had existed in each previous pregnancy. The edema only extended as

far as the hips. The labia were considerably edematous. The urine was examined and showed five per cent. of albumin and some casts. She stated that the edematous condition passed off soon after delivery on the two previous occasions, and it has done so in this instance; however, the kidneys are not acting, which is due to Bright's disease.

## DISCUSSION.

Dr. J. W. IRWIN: The doctor's description of this case appears to be very full, as far as I can see. I may say, that in his treatment he labored under many difficulties. I have never found the Barnes' dilators or bags of any value in dilating the uterus, although I have tried them several times. I have always found that the best of all dilators is the hand. I wish merely to speak of the method of dilating. I have met with several cases where quick delivery became absolutely necessary in order to stop puerperal eclampsia, or for some other reasons, and have always found that the best means of dilating was the hand.

I recall one case, that was seen in consultation by Dr. Satterwhite and another eminent physician of this city, where the patient, after partaking of a large quantity of watermelon and green corn, having previously suffered from some albuminuric condition, was taken with an attack of puerperal eclampsia two weeks before the end of the expected period of utero-gestation. She became unconscious after repeated attacks of eclampsia, and it became necessary to make a rapid delivery. She had no labor pains at all; the os uterus seemed relaxed, but not dilated larger than sufficient to admit the introduction of the tip of one finger. It was decided that delivery should be done as quickly as possible, and I was requested to do the operation. By introducing first one finger, then two, then three, finally my whole hand, cone-shaped, into the neck of the womb, pains were excited which came on very soon after I began manipulations, and I was enabled in a short time to let the head of the fetus follow my hand down into the neck of the womb, and in this way secured sufficient dilatation, by

working the cervix over the head, to apply the forceps, and the whole operation was completed in half an hour. I remember several cases where I have practiced dilatation in very much the same way, but not quite so quickly. It took in some cases as long as three-quarters of an hour, in others an hour and a quarter, to complete the operation. I think for all practical purposes the use of water bags in such cases might be dispensed with; it is a loss of time to attempt dilatation by such means.

Dr. T. P. SATTERWHITE: The only thing I have to say is, that I think if Dr. Krim had used strychnine hypodermatically, it would have acted much more promptly than egotole.

Dr. W. O. ROBERTS: I want to ask, whether or not the theory is borne out, that ergot acts upon the circular fibres and thereby closes the neck, leaving the cavity of the uterus uncontracted.

Dr. T. P. SATTERWHITE: I had a very interesting case in consultation with Dr. Griffiths, in which the midwife gave the patient a large quantity of ergot at the time when the fetus was passing through the neck of the womb, and the circular fibres closed upon the body tightly; all the force that could be applied could not release it. This condition of things existed for six hours.

Dr. J. M. KRIM: I shall certainly never again rely upon a Barnes' bag for dilating purposes in a case of this kind. As Dr. Irwin has very properly said, the hand constitutes the best means of dilatation in such cases. In the first place, we cannot tell exactly how much water the bag will hold, and a little too much will burst it every time. The bag I used in this case was practically new, and was in perfect condition.

In regard to the use of ergot: The idea that it acts upon the circular fibres of the neck, is a theory only. Whether it is correct or not, I am unable to say. I never give ergot under any circumstances until after delivery has been completed. In this case the os was still patulous, but the body of the uterus was not contracting; it showed that the ergot had contracted the circular fibres of the neck, but it afterward dilated again. The os was then drawn together and there was no bleeding, but there was a clot in the uterus; after that was removed and ergotole given, it contracted firmly.



## THE MEDICINAL PROPERTIES OF KOLA.\*

By E. B. SMITH, M.D.,

President Wayne County (Michigan) Medical Society;  
Surgeon East Market Dispensary, Detroit, etc.

Cerebro-excitants and tonic stimulants form an important division of our *materia medica*, and at present a number of them are receiving considerable attention; among these should be mentioned, caffeine, theobromine and coca. Although theobromine and caffeine exert but a temporary effect, they must nevertheless be classed as valuable stimulants; but coca, on the other hand, is liable to create a habit which, once acquired, is as formidable and serious in its consequences as that resulting from the use of opium. My object, in the present paper, is to present to your notice, kola, a new and valuable tonic stimulant, the product of a tropical tree or genus of trees. So far as can be learned, the fruit, bark or root of nearly all the species possess in a greater or less degree the same properties, but in this respect, kola excels.

The great value of kola is due to the presence of certain alkaloids, theobromine and caffeine, together with the new and powerful principle known as *kolanin*. The stimulant properties and sustaining powers of coffee and coca are well known, and kola contains not only a larger percentage of their characteristic alkaloids, but also kolanin, whose physiological effects are more powerful and lasting than either caffeine or theobromine, while at the same time it is free from the objections urged against cocaine. In view of these deductions, therefore, kola must be accepted as a valuable addition to our *materia medica*; and notwithstanding the amount of research and investigation expended upon this product, it is altogether probable that only a few of its more important therapeutic applications have been

determined. Sufficient, however, has been developed to demonstrate that it possesses valuable medicinal properties, to some of which I purpose directing your special attention.

As an *astringent*, kola has been used with marked success in cases of atonic diarrhea, its combined astringent and tonic properties producing most satisfactory results. I have also used it successfully in the treatment of summer complaint, as it occurs in children, in which it takes the place of opium with none of its disadvantages. At some stage of the disease I have used it in nearly every case of this nature coming under observation during the past summer, and with very satisfactory results, the following recipe being a favorite one:

R. Kola cordial (Stearn's), . . . fl. dr. iv;  
Pulv. acaciae, . . . . . dr. j;  
Bismuth. subnit., . . . . . dr. j;  
Aque menth. pip., . . . . . fl. dr. iv;  
Syr. aurant., . . . q. s. ad . . . fl. oz. ij.

M. Sig.: A teaspoonful every three hours (for a child six months of age).

Kola *aids digestion* by increasing the activity of the salivary glands; it also augments the output of the digestive fluids, and is therefore beneficial in that form of dyspepsia which accompanies diarrhea. Kola exerts a sustaining effect upon the vasomotor system, and thus becomes an important remedy in the treatment of children with diarrhea where the circulation is much enfeebled.

Because of its sustaining properties, kola is used by the natives when long continued exertion is demanded and little food obtainable; hence, we are led to believe that this peculiar property is similar to that of coca. That it lessens tissue waste is shown by the diminished excretion of urea. No doubt, influence upon the digestive function is exerted through the mechanism of the nervous system, the lasting impression being noticeable after the temporary effects of caffeine and theobromine have passed away.

The effect of kola upon the *circulatory system* is that of a tonic stimulant, the

\*Read before the White County (Indiana) Medical Society, October 9, 1894.

pulse being increased in strength and frequency. Quite recently, there came under observation a case of shock with collapse, the patient suffering from acute, oblique inguinal hernia of several days' duration (not strangulated). There had been no evacuation of the bowels for several days; the patient became weak and had several fainting attacks accompanied by disappearance of the radial pulse. The hernia was first reduced, and the patient given half an ounce of kola cordial; this was followed by drachm doses at intervals of ten minutes until four doses had been administered, and was attended with good results.

Kola exerts a slight *diuretic* effect, and may be advantageously combined with digitalis, especially in cases of heart trouble where there is passive congestion of the liver. The fluid extract has been used successfully as an injection in cases of *gonorrhœa*, and it seems to act as a tonic astringent; it is useful in both specific and simple urethritis. I have found, as noted by Morrow (System of Genito-Urinary Diseases, Syphilology and Dermatology), that a vegetable astringent with some mineral astringent salt, is a happy combination, and in chronic cases, excellent results have attended the use of fluid extract of kola in combination with zinc acetate and potassium permanganate. In acute cases I do not advise astringents, being careful to see that the solution used is slightly acid rather than alkaline; equal parts of fluid extract of kola and water are used. In the case of granular patches in the pendulous portion of the urethra, I have followed up the first application of silver nitrate by the local endoscopic application of extract of kola—a solid extract prepared especially for me—with happy results. When patients are unable to come to the office, the following is prescribed:

℞. Ext. kola,..... gr. xxx;  
Ext. hydrastis,..... gr. xij;  
Acidi borici,  
Ol. theobromae, ℞ q. s.

M. et ft. supposit. (urethral), no. 12.

In cases of *cystitis*, with constant desire to urinate and more or less pain accompanying the act, or where tenesmus is present, I have used kola with good effects. At the same time it acts as a diuretic.

Kola is also indicated in uterine and vaginal disorders accompanied by depression of the vital powers; it is also of value in calculous affections, so often due to derangement of the digestive function, good results being obtained by combining it with some of the solvents, such as lithia. A student suffering from renal calculus who took large doses of kola, observed among other symptoms, considerable nervous stimulation and a marked diuretic effect. After taking an unusually large dose one evening, mental stimulation was followed by mental confusion, although not to a marked extent. Slight pains felt in the region of the kidney were probably due to movement of the calculus caused by the increased secretion of urine.

In *alcoholism*, kola seems to supply the place of liquor admirably; it also builds up the nervous system, enabling the patient to withstand the craving for alcoholic stimulants. It aids in overcoming the indigestion common to drunkards, and is useful also in the stage of delirium. It has proven beneficial in relieving the vomiting of drunkards, as well as that which occurs in pregnancy, in which case it may be combined with other similar remedies.

Considerable benefit is derived from the use of kola in *phthisis*, since it lessens the cough and improves the general tone of the system. Through its influence upon the vasomotor system, it is of value in cases of *pulmonary hemorrhage*; a drachm of the cordial is given, at first every twenty minutes, then at intervals of two hours. Its hemostatic properties have been demonstrated by several of my professional friends. In a case of pulmonary hemorrhage which I had treated several times by the administration of gallic acid, with ice packs to the chest

and hypodermatic injections of ergotin and ergot, my assistant, Dr. Rice, during the last attack, gave kola cordial (Stearns), every twenty minutes, until four doses had been taken, then at intervals of three hours for two days, with the satisfaction of controlling the hemorrhage. In my own cases, kola was combined with ergot. In the case of hematemesis, due to gastric lesion, there is a prominent indication for the remedy, since kola acts as a constrictor of muscular fibre. One patient, a young man of intemperate habits, was promptly relieved of hematemesis by the administration of kola.

As a *local application* to mucous membranes, kola has a promising future. In the case of hemorrhoids, a convenient form will be found in suppositories, each suppository to contain three to five or more grains of the solid extract of kola. By lessening the local hyperemia this form of medication affords great relief.

### SARCOMA OF THE MUSCLES OF THE CALF.\*

By WM. L. RODMAN, A.M., M.D.,

Professor of Surgery and Clinical Surgery in the Kentucky School of Medicine; Surgeon to the Louisville City Hospital, St. Mary's Hospital, etc., Louisville, Ky.

A gentleman, aet. forty-nine years, in rather feeble health, on account of the fact that he had been the victim of rheumatism for many years, began to suffer with pain in the calf of the leg in February last. There being no swelling at the time, he naturally attributed the pain to an expression of his ancient enemy—rheumatism. About the first of June he noticed some swelling in the calf. The swelling grew apace, and with it the pain increased *pari passu*. He called to see Dr. J. W. Irwin the latter part of June or the first of July. After several very careful examinations, in which the doctor eliminated acute

or chronic abscess, thrombus, aneurism, and other affections that might be expected in this location, he gave it as his opinion that the man suffered from some form of tumor. The history of the case made it almost certain to him that the growth was malignant, and he promptly diagnosed sarcoma. I was asked to see the case shortly after the first August. I found a uniform swelling of the calf of the left leg; the superficial veins were more or less prominent; the swelling was freely movable, about the size of a large duck egg, and apparently situated beneath the soleus muscle, between it and the deeper layer of muscles. I concurred in the diagnosis which Dr. Irwin had made, and also in the treatment which he proposed. At our second consultation the son of the patient, a doctor, met with us, and we explained to him freely what we took to be the nature of the growth—that it was a sarcoma, and that the most approved treatment in such cases was prompt amputation. I remember having said to him at the time that if it were my own leg, I would have an immediate amputation performed. The son, however, asked that the growth be first removed, and then await developments. It was removed eight weeks ago. The operation was done under an Esmarch bandage, so we might save the patient any loss of blood as he was already much enfeebled from a long siege of rheumatism, also that we might more readily determine from whence the growth sprang. It would seem that we were correct in our first supposition and that it was situated beneath the soleus muscle, growing from its aponeurosis. The growth was hard, smooth, not encapsulated, and was intimately adherent to all surrounding tissues. It was removed by a blunt dissection, the wound closed, and the man made a slow convalescence, being discharged at the end of a month. We rather encouraged free suppuration in this dead space that was left behind. The tumor was given to one of our best microscopists, Dr. Carl Weidner, who pronounc-

\* Report and discussion before the Louisville Clinical Society; original contribution for the AMERICAN THERAPIST.

ed it to be a large spindle-celled sarcoma. When he made this report, I was then more certain in my own mind that a prompt amputation would have been the better plan of treatment.

As I have already stated, he was discharged at the end of a month, when he went to the country to visit his mother, who is living at the age of ninety-three years. After twelve or fourteen days absence in the country he was forced to come back to us on account of a recurrence of the pain, and also a swelling in the same situation as the previous one. At the first examination after his return two weeks ago, I told him that unmistakably the growth had recurred, and that a further operation would be necessary. He was inclined to discredit the accuracy of my statement on account of the fact that the swelling had grown so rapidly; he thought it must be inflammatory, as it felt like an abscess; it had grown so rapidly that he could not recognize it as the same form of tumor that he had suffered with before. We watched him for three or four days, and I am sure that never in my life have I seen a growth of any kind show so great a degree of malignancy. It seemed as if we could see a difference in the size of the growth from day to day. At the end of four or five days, Dr. Irwin was asked to see the case again with me, and we both felt that we were losing time and that an amputation should be done at once. The patient's son after consultation also agreed that amputation should be done, and that no more time should be lost. The man very sensibly yielded to the inevitable, and allowed us to amputate his limb last Saturday. On account of the rapidity of the growth, I thought best to do an amputation in the lower third of the thigh. This was done at a point about four inches above the knee. In order to prevent shock the sound limb was swathed in cotton, and his room was kept at a temperature of eighty degrees. No Es-march was used on account of the danger of forcing particles of the growth into the

bloodvessels, but the limb was kept elevated for perhaps twenty minutes before the operation. He suffered very little shock, not as much as I had expected, and barring the fact that he vomited almost incessantly for twenty-four hours from the effects of chloroform, bore the operation extremely well. This afternoon at four o'clock his temperature was 99° F. in the mouth, pulse better than it has been for weeks, and I think he will make, so far as the operation is concerned, a speedy and uneventful recovery.

Now, the lesson taught by this case is not new by any means; it is, that amputation after all is the only approximately safe and reliable treatment for the more malignant form of sarcoma of the extremities, and while we will find many of our patients averse to such treatment, just as this man was, I take it that the judicious surgeon will always hold himself in readiness to perform a prompt amputation, as soon as there is the slightest disposition to repullulation of the growth. This is a large spindle-celled sarcoma, as I have said, which we know is, next to the small round-celled, the most malignant of all the sarcomata.

Another point of interest in connection with this tumor is, that it grew from the muscle—rather from the aponeurosis of the soleus muscle. Statistics show that this is possibly the most malignant form of sarcoma that we have, more so even than the periosteal growths so often seen. Teevan, in his work upon sarcoma of the voluntary muscles, was able to collect only twenty-two cases of primary sarcoma of voluntary muscles. While this tumor did not seem to grow from the muscle itself, but from the aponeurosis of the soleus muscle, yet from the exceeding rapidity of the growth I am inclined now to think it is one of those rare forms of sarcoma of the voluntary muscles. It is certainly a very interesting case, and I regret somewhat now that an amputation was not done two months ago.

I have had the limb brought here for

your examination, and have split the secondary growth down to the bone that you may more readily observe its location and extent.

#### DISCUSSION.

Dr. J. W. Irwin: The case to me was an exceedingly interesting one. I had never before seen a tumor of the calf of the leg, and when the patient came under my observation the growth appeared to be about the size of a duck's egg. It was movable, and did not appear to have any deep attachments. There was no enlargement of the leg at any time, and no swelling below the tumor; this I regarded as diagnostic of the fact that it was not a thrombus. There were no enlarged lymphatic glands in the neighborhood of the tumor. There were no evidences of tuberculosis, notwithstanding the fact that the patient gave the history of consumption, on the maternal side, two or three relations having died of that disease. There was no history of syphilis clear enough to be able to say that he had had syphilis, although he had served in the army, and while some of the older authorities would regard this fact alone as proof that he might have had the disease, I believe the contrary was the case. He gave the history of having had a sore on the penis, but never received any treatment for it; there were no after-effects, the sore healed in a few days; he never had had any enlargement of the glands in the groin; no mucous patches in the mouth or throat; no falling out of the hair, and no local manifestations of syphilis; therefore I regarded the sore which appeared on the penis as probably herpetic in its nature.

The man had been very intemperate for many years. He gave the history of having drank to excess periodically, the periods occurring quite frequently. He would remain on a spree as long as six or eight weeks at a time; for a week or two he would not drink at all, then he would begin drinking again. During the drinking periods he could not say just how much

he consumed, but before breakfast his usual dose was about a quart of whiskey. He stated that drinking and accompanying dissipations had cost him about one million of dollars. Two years before he came under my observation he had been induced to take the Keeley treatment, and from that on he had ceased to drink whiskey, and up to the present time has been temperate, totally abstaining from the use of whiskey.

Something might be said in mitigation of the circumstances which caused the operation of removal of the growth. The tumor was not large; it did not appear to have any deep attachments, and there was some uncertainty as to the nature of the growth before its removal. Therefore, we thought it would be well to give the patient the benefit of the doubt, although all agreed that amputation would be the proper thing to do in sarcomatous growths. Further, on account of the patient's son, who was a physician, being anxious to save the leg if possible, we decided to perform the operation of removal of the tumor.

I do not feel quite in accord with the view expressed by Dr. Rodman in regard to the primary operation in this case; there was a possible chance of saving the member by the procedure which was carried out, and again the operation was done mainly in the interest of science. While the history of this case and statistics generally go to show that amputation is the only safe thing to do, yet there might be exceptions to the rule, and this really looked like a case where the exception might prove to be true. In view of this we thought it advisable to give the patient the benefit of the doubt. Now, this tumor recurred, and thus were settled all doubts as to whether removal of the growth was the proper thing or not.

Another subject was discussed in connection with the probable return of the growth, and that was the suitability of the case, and the location of the tumor, in which to try the so-called Coley treat-

ment, the injection of the toxines of erysipelas. However, when the patient returned from the country the rapid development of the tumor showed its great malignancy, and the Coley treatment not having been tried here to any satisfactory extent it was not sufficiently prolonged to get any marked results. At all events an immediate amputation, as Dr. Rodman has stated, seemed to be the only thing that offered any hope of prolonging the patient's life. As I have said before, I do not feel in regard to the case as Dr. Rodman has intimated that he does, although I recognize from a strictly statistical point of view that he is absolutely correct.

Dr. J. M. Mathews: What was the condition of the patient's liver?

Dr. J. W. Irwin: It was only slightly enlarged. It was not found to be hardened or nodulated, and it extended probably about a half inch below the margin of the ribs, quite enough however to indicate that it had been diseased.

There is another point in this case which I might mention: Before amputation was done, one of the assistants, who was about to administer the chloroform, entered the room and said that the patient had an aneurism of the celiac axis. I had made several examinations of the patient before and could not agree that there was an aneurism in this situation. We know that very slight pressure, even the weight of the stomach, with the patient lying on his back, will often cause a perceptible murmur in celiac axis. In this case there was a murmur, but it was not the characteristic murmur of an aneurism; it was a coarse sound such as we often find in endarteritis. In this case I ventured the opinion of an atheromatous condition of the inner coats of the vessels, and that the pressure of the stomach had much to do with the blowing sound about the celiac axis. By turning the patient on his side the blowing sound ceased, which seemed to me to prove that it was not an aneurism in that locality. After the amputation was done, Dr. Rodman called my attention to the fact

that there was an atheromatous condition of the arteries, or that they had commenced to change, they were considerably hardened. I suppose this hardening of the vessels was due to the enormous quantity of alcohol the patient had taken, more than to his age.

Dr. J. M. Krim: I hope the result in this case will not be like one that I reported to this Society some time ago, in which a sarcoma developed just above the knee in a girl seventeen years of age. Amputation was done above the knee. About six weeks afterward another growth made its appearance on the head. This was removed, and about three weeks later the third tumor developed on the side of the head and grew rapidly; the patient became totally blind from its effects, and died a few weeks later. No operative procedure was attempted for removal of the third growth; so much tissue was involved about the head as to make operation impossible.

Dr. W. L. Rodman: Was the original tumor black in appearance?

Dr. J. M. Krim: Yes, sir.

Dr. J. B. Marvin: The case Dr. Rodman has reported is very interesting, and there are two or three points that occur to me: Have you tried the Coley treatment in these cases? Why should it not be tried here as well as elsewhere? I recollect one of the first cases that Coley reported was one in which a sarcoma had been removed five times by the knife; erysipelas developed and the growth never returned. Sarcomata are connective tissue growths, and really are simply malignant-benign-tumors, in one sense, and the character of the tumor varies largely with the amount of cell growth, a small round cell sarcoma being more malignant than any of them, having very little of the connective fibrous tissue in it, largely made up of cells. These sarcomata are liable to occur anywhere in any mesoblastic tissue, and take their type from the character of that tissue. When a sarcoma originates as one character of growth, if it is removed and re-

curs it is nearly always a different variety and more malignant. If a spindle-cell sarcoma is removed and recurs, it is very apt to do so as a round-cell growth. Very frequently it will be found that these tumors have undergone degenerative changes in the center; while the edges may appear hard, the middle will show a softening.

One explanation why amputation should be done when a sarcoma occurs on the extremities, I think, is on account of the large blood supply in these tumors, the vessels often going right through the structure of the sarcoma itself, the sarcoma cells constituting the walls of the blood vessels, the blood supply being so abundant and the vessels so numerous that metastasis is very liable to occur. Cases have been reported where considerable masses of these tumors have been washed off and found in the chambers of the heart, as well as causing secondary growths in other parts of the body. The giant-cell sarcoma affects chiefly the hard tissues, bone-marrow, etc., especially about the jaw—the so-called epulis. I saw a case with Dr. Holloway some years ago, in which he wanted me to use electricity; it was undoubtedly a sarcoma and grew very rapidly, involving almost the entire ramus of the jaw. After one or two sittings it was seen that electrolysis was no use. Dr. Holloway removed the growth by surgical means. That patient is living to-day in perfect health, there never having been a recurrence of the disease.

In sarcomata of the soft tissues while the cells are apparently large, you will find them usually mixed up with large and small cells, and also fibrous tissue as in myxo sarcomata, together with an abundance of mucous tissue. The so-called epulis, I think, is rather more amenable to treatment than other forms, and is not nearly so liable to recur.

Dr. W. L. Rodman: I am very glad to have had Dr. Irwin and Dr. Marvin discuss the case reported so fully. The treatment by toxins is only applicable in cases

of inoperable sarcoma. No one will lose time in using toxins in cases that are clearly operable. This treatment is only indicated in cases where you cannot remove the entire growth by any operative measures. I have had some little experience in the Coley treatment, being perhaps the only one in this city who has used it. Dr. Coley sent me some of his toxine several months ago. I used it the first time in a very virulent growth of the jaw. The patient, I must say, died very promptly under its use; his end, I am satisfied, being hastened several weeks by use of the toxins. Dr. Coley uses the toxine in such a way that you are not apt to get erysipelas; he uses the product of the germ rather than the germ itself, because of the fact that he has lost two or three cases from erysipelas artificially produced.\*

In the case under discussion, I made two injections of the toxins during the time the patient was undecided as to whether he would have an amputation done or not. The two injections that I made into this growth, I must say, damaged the man somewhat, and I feared to make the third injection. He almost died after the second injection from a chill and symptoms which he had following it. He shook for an hour or more in bed; he also had great dyspnea after the injection, so much so that his son became very much alarmed. So much for the Coley treatment. I wished to emphasize the fact that it was not indicated in this case, that it is only indicated in cases of inoperable sarcoma.

As to the retrogressive changes in this growth: In some respects this growth is a contradictory one, because while it seemed to be very hard and cut more like cartilage than sarcomatous tissue, yet it had broken

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\* NOTE.—This is probably a misapprehension. Only the toxine is used, and the germs or cultures are carefully eliminated or excluded by filtering the completed bouillon product through clay, through which only the toxine passes. There is absolutely no danger of infection from applications of the germless toxine.—Ed.

down in the center. I was surprised to find that it had broken down in so short a time on account of the external part of the growth being so hard. Where a growth contains so much fibrous tissue, it is unusual to find breaking down so early in the case. Further, as Dr. Marvin has intimated, the gross appearance of this specimen would suggest round-celled sarcoma. When the examination was made by Dr. Weidner, I was a little surprised, as I thought it was probably a small round-celled growth. Of course, we know in any form of sarcoma, you are sure to have both cells mixed together, and it is only the predominance of cells which determines the type. We always find more or less spindle-cells in a round-celled growth, and *vice versa*, and as I have said it is the predominance of the cells which determines the type. This is a large spindle-celled sarcoma, so the report states.

Another point: I did not use the Esmarch bandage on the leg—I was afraid to use the Esmarch because it might force some juice or cells higher up into the blood vessels. I had the leg held up for perhaps twenty minutes, until it became practically bloodless, then applied the Esmarch about the middle of the thigh.

As to myeloid sarcoma, or epulis, spoken of by Dr. Marvin: This I believe is the least malignant of all forms of sarcoma. I have seen a great many cases of epulis of the lower jaw. These growths are exceedingly benign, for growths having a malignant name. At the St. Joseph Infirmary, seven years ago, I removed a growth of this kind, and there has been no recurrence. It is not unusual to find myeloid sarcoma, especially of the lower jaw and of the long bones. It is by far the least malignant of sarcomata, being even less so than the small spindle-celled growth, or so-called recurring fibroid of Paget.

**BLOOD SERUM** Formula for Diphtheria Culture  
Tubes: 3 parts Loeffler blood serum, and 1 part broth with 1 % glucose.

## Recent Medicaments.

**TRIBROM-SALOL** is a new compound, distinguished among intestinal antiseptics by its solubility in alkaline media with or without the aid of pancreatic juice. In passing through the system this product is separated into tribromphenol and salicylic acid; it is comparatively non-toxic, and said to be very effective.

**SEPTENTRIONALIN** is the awkward name of an alkaloid of a variety of aconite, recently investigated by Prof. Kobert, of Dorpat; the report states that subcutaneous and intravenous injections equal the effects of curare—the mysterious and virulent arrow poison. Kobert recommends the new alkaloid as antidote for strychnine poisoning, and as a remedy for hydrophobia and tetanus.

**MALAKIN IN ACUTE ARTICULAR RHEUMATISM.**—Montagnon (*Sem. Méd.*, Nov. 3, 1894, *Univ. Med. Mag.*) reports favorably upon the action of malakin in acute rheumatism. He states that it increases the urine, assists in the elimination of uric acid, and exerts, even in large amounts, no deleterious effects. While it lowers temperature, it does not induce gastric disturbances or ringing in the ears like the salicyl compounds. The average dose is one and a half drachms in the twenty-four hours, although as much as two and a half drachms may be given with safety, if properly divided.

**THE DOSE OF THE DIPHTHERIA ANTITOXIN.**—Roux states (*Medical Record*) that his practice has been to give 20 c.c. (over 5 drachms) of serum to each little patient on admission, and the same quantity, or half the same quantity, according to the severity of the case, twenty-four hours afterward; and if the pulse and temperature still remain high, the same dose is again given. He adds that the smallest quantity he has used has been over 5 drachms, and the largest quantity about 4 ounces; in one exceptional case he gave as much as between 6 or 7 ounces. Practitioners should remember these facts, and that Roux's series of cases is by far the largest and most important hitherto published.



# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### RECTAL INJECTIONS.—HISTORY REPEATING ITSELF.

Special attention is directed to the very instructive communication of Dr. FAULDS in this issue of our Journal. It is just such articles as this that should constitute the "practical" element in medical journals. The mere re-publication of formulas for the relief of the various conditions he has so accurately depicted would be a loss of time to both the writer and reader, and a waste of space for the journal publishing them, because their application would be utterly impracticable. The first object in medical treatment is to enable the patient to recover, but there is a second consideration, almost of equal importance, namely, the principle applied for the relief.

The principle involved in the use of rectal injections is now likely to be more fully developed, since it has recently attracted the attention of foreign physicians. Indeed, we are informed that the method of treating mental disorders is to be revolutionized by the rectal administrations of saline solutions. The report is to the effect that Dr. CARLO SANQUIRICI, of Vienna, has been making some investigations to determine the effect of saline enemata up-

on animals poisoned by the internal administration of strychnine. A sufficient quantity of the alkaloid to produce death was injected into two animals; one was used as a control, and to the other a quantity of salt solution equal to eight per cent. of its weight was introduced into the rectum. The control animal died, while the one subjected to the treatment promptly recovered. A case of insanity, supposed to be due to auto-infection, was placed under this treatment, two quarts of the solution being administered daily, one half at night and the other in the morning, and was followed by immediate and marked benefit.

Of course, in this case, the salt must be considered as a factor, but it is not one of any considerable significance. In truth, the results would probably be quite as satisfactory if an equal quantity of flax-seed tea were administered and the diet properly regulated. We do not overlook the fact that the introduction of the salt into the economy results in a larger output of hydrochloric acid in the gastric juice, but on the other hand, we must not forget that many of those who suffer from the effects of indigestion also suffer from hyperacidity.

In order to show the appropriateness of the heading selected, the editor takes the liberty of reproducing here an editorial article which appeared in the AMERICAN THERAPIST in July, 1892, the first number issued. It is entitled, "Rectal Injections," and runs as follows:

Philosophy aside, the value of flushing the colon with properly sterilized water, hot, tepid or cold, according to the special indications present, will be readily admitted in a long list of formidable diseases, some of which may be mentioned as follows: Habitual constipation, with or without mental depression or active cerebral manifestations due to auto-infection, being so common, might be permitted to head the list; all occult nervous affections, associated or not with the uric acid diathesis, would naturally attract our notice, as it is well known that disordered innervation is generally conducive to the absorption of

poisonous products from the alimentary tract. They are also serviceable in disease dependent upon pelvic congestions, such as uterine displacements, ovarian pains and hemorrhoids, for they contribute materially, though indirectly, to relieve the original cause, viz., hepatic insufficiency. In appendicitis, perityphlitis and abscess, for which the *ameba coli communi* is now held responsible, they are invaluable. Mild, and even severe cases of dysentery and diarrhea are often brought to a favorable termination without enemata, but it is safe to say that with appropriate diet, all cases would be decidedly benefited and many fatalities avoided by the adoption of this simple means. Enemata should find a place in the treatment of other disorders of this character, notably, in the collapse of cholera morbus, yellow fever and cholera, as well as in the conduct of cases of pleurisy or typhoid fever.

When it is stated that the foregoing was published two and a half years ago, and that it was reproduced in quite a number of the medical journals throughout the country, it will be safe to estimate that thousands of physicians have already taken advantage of the suggestions. Perhaps some of those who have employed rectal enemata will come forward and testify to its efficiency. Contributions of this character will receive a hearty welcome.

#### COUGH MIXTURES.—A NEW REGIME.

That there is room for improvement in the preparation of cough mixtures has long been appreciated by the medical profession. That coughs can be controlled without the administration of anodynes, nauseants and saccharine substances is proven by the fact that they are rarely used by our homeopathic brethren, and besides, a considerable proportion of the intelligent laity seek homeopathic medication for their children because they cannot take "the bad medicine." But "these are hard sayings; who can hear them?" Nevertheless, they are true, and every honest and capable physician *will* hear them—if he lives long enough.

We are prompted to bring this subject

again to the attention of our readers by the receipt of the following communication from a valued correspondent:

"In an editorial in the October issue of the AMERICAN THERAPIST you knock down several medical idols of long existence, viz.: Anodynes, nauseants and saccharine substances. If the above are to be left out, please tell what we must do for coughs and colds, because we must treat them. Please give that 'new regime for the winter campaign'."

To some it seems the height of folly to "kick against the pricks," but having counted the cost, the hope of reward far outweighs the fear of punishment, and we have not put the hand to the plough with the intention of turning back. The following words have been penned with deliberation and care; they are intended to express certain views in therapeutics as applied to cough mixtures that have been time and again confirmed by clinical experience. The suggestions which follow are intended to apply to the treatment of coughs and colds as they come to the attention of the physician in his office and daily visits; simply the acute cases, omitting reference to chronic cases and coughs from reflex causes.

A word should be interpolated here in regard to the numerous tablets, pills and capsules that are now offered for the relief of this class of cases, because, for the most part, they are not an improvement over older methods, except in the matter of ease in administration. They merely supply the old medicaments in a less objectionable form, and do not in any sense constitute an advance in the department of therapeutics, while the results are equally as unsatisfactory, and in all human probability, quite as disastrous to the patient. There is no longer any excuse for the members of the medical profession hoodwinking themselves, since the evidence is clear, convincing, cumulative and incontestible.

In considering the treatment of coughs and colds from a modern standpoint, we must not overlook as factors, the ptomaines,

leucomaines and extractives which result from normal changes, although it will not be necessary to extend our investigations into the field of bacteriology further than to admit that exposure renders the system more susceptible to bacterial invasion. A cold, therefore, is due to diminished resistance—it may be from lack of food, from fatigue, from excitement or mental perturbation, from overeating, or like causes—and as a consequence, poisonous products are absorbed. Nature, then, undertakes the elimination of these poisons in her own way—sometimes by increased activity of the kidneys, at other times by looseness of the bowels, or increased functional activity of the pulmonary structures or the skin.

Knowing these facts, the question comes up, Would it be rational treatment to follow the methods indicated by Nature? In the case of diuresis, would it be policy to give diuretics, or should this tendency be arrested? In the case of looseness of the bowels, are purgatives or astringents indicated? In the case of bronchial irritation shall we administer expectorants? When diaphoresis is marked shall we best succeed by the exhibition of diaphoretics? If there were no other factors to be considered, these different plans might succeed, and it will not be denied that, under favorable circumstances, they do succeed. However, the treatment of a cold is in some respects similar to the management of a boom during a freshet. If the logs composing it are separated and judiciously distributed in accordance with the size of the stream, they will readily float over the obstructions and will be safely corralled at the proper place. Should the entire raft escape at once, the stream is blocked and it will be impossible to extricate them. This illustration finds its counterpart in the ice seen floating in rivers at the breaking up of winter. When the stream is rapid and the channel narrow a jam is almost certain to occur.

From the foregoing illustrations, it will be easy to draw inferences. The stream

represents the blood-current, while the logs and ice constitute the objectionable elements which Nature is intent upon eliminating, and since we have no means of destroying them, we must endeavor to regulate their movements. This is best accomplished by the administration of arterial sedatives, aconite, gelsemium, veratrum, digitalis, ergot or antimonial preparations. In the employment of these remedies, however, it is necessary to exercise a nice discrimination, since the different drugs possess peculiar properties. The selection will depend upon the particular part or organ that is involved, together with the disordered condition of the circulatory apparatus. Indeed, it may be necessary to administer vascular and cardiac tonics in order to correct a defect which cannot be remedied by sedatives. Thus, veratrum early shows its effects upon the cardiac muscle, and is indicated especially to control the irregular movements of that organ, as shown by the full, bounding pulse. Aconite, on the other hand, manifests its physiological effects first upon the smaller arteries, small doses quickly relieving the pain incident to congestion, active or passive, affecting the terminal nerve filaments; it is, therefore, indicated for the small, frequent, but regular pulse. Gelsemium will prove most effective when we have a hard, moderately full, but rapid pulse; it is especially useful for the arrest of profuse nasal secretion.

Having the circulation under control, the next important step in treatment is to attend to the condition of the stomach and intestinal tract, to prevent the absorption of poisons; and one of the best remedies for this purpose will prove to be an emulsion—cod-liver oil, petroleum, flax-seed tea, or mucilage of acacia. The advantages of flax-seed tea are many, but it will be necessary only to mention the most important, viz., that it collects and holds together the thousand-and-one particles distributed throughout the alimentary tract, the "*flotsam and jetsom*," and prob-

ably in this manner interferes with the multiplication of bacteria and spores of every description. Cod-liver oil and petroleum in the form of emulsion answer the same purpose as flax-seed tea, but in addition, they contribute something to the upbuilding of the organism, while petroleum possesses distinct antiseptic properties and is also detergent. "Irritative cough," which has existed for a long time, may frequently be relieved promptly by these remedies.

At other times, the condition of the liver may be responsible for a persistent cough which follows an attack of acute catarrh, which can be relieved by the judicious use of emulsions or intestinal antiseptics in conjunction with hepatic stimulants—small doses of podophyllin resin, ipecac, ox-gall, or minute doses of the biniodide of mercury.

There are, however, some cases of bronchitis, pure and simple, which resist our most earnest solicitations, usually found in patients with a debilitated condition of the system, in which anodynes may be advantageously combined with suitable expectorants; but in such instances we must not forget the need for improved dietary and the exhibition of remedies calculated to improve the nutrition, the hypophosphites, for example. As a temporary expedient, to relieve the cough, we may give small doses of codeine sulphate with terpin hydrate—for an adult, one-tenth grain of the former with two grains of the latter, every hour or two.

There still remains to be mentioned in this connection a remedy which is of distinct value in the early stages of acute bronchial catarrh, namely, bryonia, either in the form of tincture, or the active principle, bryonine. It can be advantageously employed in connection with arterial sedatives, or with strychnine arsenite, when arterial or vascular tonics are demanded, and it should be given in small doses at short intervals, one to three drops of the tincture every hour until pain and expectoration are brought under control. This

remedy appears to be most efficacious in the class of cases showing a disposition to become chronic, with more or less expectoration at irregular intervals. It also has the advantage of being a useful hepatic stimulant, and frequently will prove efficient after the failure of anodynes and the usual cough mixtures.

### CELL STIMULATION AND CELL IRRITATION.

The following extract from a private letter received by the editor is well calculated to excite comment and stimulate inquiry because of the important bearing it has upon rational therapeutics.

"Can't you write something bearing upon cellular therapy where you can point out the difference between cell-stimulation, physiological, and cell-irritation, pathological? The nutritive and correlative *versus* the retrograde metamorphic changes—alterations of degree passing into those of kind, etc."

Now, this is a large subject, a subject too, worthy of careful and painstaking investigation, but to those who are familiar with the clinical features attending the use of single remedies, the difficulties are not insuperable. To anyone familiar with the elaborate researches of BRUNTON in pharmacology, the employment of single remedies for their specific action is comparatively easy, and their routine exhibition is followed by such uniformly good results that it seems scarcely worth while to study the *methodus medendi* by which results are obtained. The idea of administering remedies for their supposed special action upon cellular activity is not new; the name itself is new, and aptly designates a practice which has obtained since the dawn of medical history. Cellular therapy has special reference to the administration of drugs for the upbuilding of cellular function, and applies to the living cell, as contra-distinguished from cellular pathology, which has to deal with the destructive or retrograde changes, as de-

monstrated by microscopical examination of the cell after death.

Cell-stimulation, physiological, is a term which may properly be applied to the effect produced by moderate or small doses of any particular remedy that increases the functional activity of certain cells. Thus, arsenic furnishes an example of this, in its effect upon the pulmonary structures, the skin and other tissues of the body, where degenerative changes have begun, or are anticipated by reason of cellular inactivity. Under certain circumstances—usually, it may be said—arsenic in large doses produces fatty degeneration, or even in small doses when long continued. In moderately small or minute doses it is a physiological stimulant, more especially at the points of elimination—where its effects are most pronounced, or, rather, where its effects are most noticeable. The object of our inquiry, therefore, will be accomplished when we can indicate the line of demarkation, saying, here physiological stimulation ends and pathological irritation begins. During life, however, it would be impossible to do this, and we can only infer from physical signs and physiological indications that retrograde changes have taken place.

It will be necessary to halt here, in order to elucidate an important truth which has, heretofore, been overlooked, namely, that the *action* of a remedy is always the same; the *effect* will vary according to the susceptibility of the patient and the amount of the dose. In order to form a true conception of cellular therapeutics, this fact must be constantly borne in mind. Arsenic is first, last and all the time an irritant. The irritation which it produces in small doses is just sufficient to increase the functional activity of the cells with which it comes into contact. Being distributed throughout the system (as an arsenite), through the medium of the fluids, the blood and lymph vascular systems, the protoplasm is constantly bathed in this irritant solution; but so long

as the irritation is kept within due bounds, Nature does not rebel, only she proceeds as rapidly as possible to eliminate it from the organism. In large doses, or even when small doses are long continued, the functional activity of the cells is suspended (arrested?), and the irritation produced results in the breaking down of structure—the fatty degeneration described by BRUNTON and other experimental physiologists. Stimulation that was originally produced by irritation has resulted in pathological changes, simply by a continuation of the original cause. The action of the remedy has been constant, *i. e.*, it has been the same throughout, differing only in degree, but the effect in the one case is different from the effect in the other. In other words, it may be said that while the action differs in degree, the effect differs in kind. Although we are unable at present, the time will come when experimental physiologists can determine with some degree of accuracy the nature of molecular changes which take place under these various conditions; and in the meantime, much can be learned from clinical observation by intelligent and faithful physicians who seek for the benefit of patients those remedies that are best calculated to improve cellular activity in the diseased structures, avoiding the use of drugs which benumb and paralyze the entire system. The object of treatment should be to restore, not to destroy; the aim of the physician should be to help rather than to overpower nature.

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AGREEABLE METHODS OF SUBSCRIBERS. In renewing his subscription, Dr. W. Mahoney, of Brooklyn, writes: "It is a real pleasure to send this very modest sum for such an interesting periodical."

And Dr. John Forrest, of Charleston, says: "The November number was of much interest to me; I send my subscription, and regret I had not seen your journal before."

We receive many similar letters, and appreciate these kind words—because the accompanying remittances stamp them as truly sincere.

## Correspondence.

### THE DANGERS OF ANTITOXINE— A CORRECTION.

TO THE EDITOR :

SIR:—Under the head of Therapeutic Memoranda in your last issue, in the item "Dangers of Antitoxine," you have made two slight errors. I quote as follows: "He used it in the case of a male. Two injections were made and both were attended by extensive purpura around the seat of injection, which," etc. What I did say, was, that urticaria appeared, and *at the same time*, around the puncture, the skin was of a dark red, or almost purple hue.

Again, "Upon reporting this accident to the manufacturers, they took the number of the phial containing the substance, traced it to a certain horse, and an order was given to have him turned out immediately." What I meant to convey to you was this: That I communicated with the makers, and they said that the same thing had been observed in the Children's Hospital, Paris, where the Roux serum is in use; that some horses furnish a serum which has the property of producing eruptions, and especially urticaria. They said they would endeavor to trace the serum to the horse from which it was obtained and eliminate him from their stock—if any other patients were so effected.

The correction is important, I think, especially as the papers have published accounts to the effect that I had poisoned a patient with an *over-dose* of antitoxine.

J. LINDSAY PORTEOUS, M.D.

83 Warburton Ave., Yonkers, N. Y.

December 18, 1894.

### ERYSIPELAS AND CANCER AGAIN.

TO THE EDITOR :

SIR: It appears that interest has been manifested of late in certain quarters as regards the value of erysipelas toxine in the cure of certain forms of cancer. I have accordingly deemed it not out of

place to report a case which I have met, a similar one to that reported by my old army friend, James Collins, M.D., of Philadelphia, (*AMERICAN THERAPIST*, May, 1894).

About one year ago (August, 1893) Mr. D., æt. about 60 years, miller by trade, called upon me for an operation for *hydrocele*, which I performed quite successfully. At this time I noticed a small oval ulcer on the side of his nose about the size of a very large grain of wheat, and which grain if cut longitudinally in halves would about bury itself if laid oval-side down in this cavity. The ulcer was secreting a slight quantity of sero-purulent matter faintly tinged with blood. I applied ichthyol, which soon caused the formation of a crust over it, but in a few days he called at my office to consult me about this sore. He had scratched the scab off in the night while sleeping.

I then learned that he had had the sore about fifteen years, and it had been called by physicians in Virginia, where he formerly lived, a skin cancer. Various lotions and ointments during these years, on different occasions, had been applied with a view to healing it, but without much encouragement. It would crust over, but only to soon break again, becoming an open sore.

But at the particular time of which I am speaking, this ulcer was accidentally struck a very light blow. It took on erysipelas which rapidly spread over nose, face and forehead. I applied a fifty per cent. lotion of ichthyol in glycerin, and gave him internally atropine sulphate and arseniate of quinine with strychnine sulph.; one granule (*Dosimetric-Abbott Alkaloidal Co.'s*) of each, together every three hours for twenty-four hours, then every four hours till the erysipelas abated, which was on the third day. At the end of a week it had almost wholly disappeared and the ulcer almost healed.

In a few days it healed entirely, leaving a good-looking, healthy cicatrix. This was the only time it had healed in the past

fifteen years. It remained in this condition one year, or up to August last (1894), when he called on me again, he having another time scratched it. I gave him ichthyol to apply, but no medicine this time, as he said he thought he needed none. About three weeks ago I met him on the street, the sore was encrusted over, but I am sure that the healing process from appearances had not made much advance. I asked him to again take some of the same medicines, as a test this time of their virtues in healing this kind of an ulcer independently of the erysipelas poison. I think there is strong probability of their doing good again, as the arseniate is a vital incitant as well as the strychnine.

In cancer of the uterus I find that arsenic, hydrastine and cicutine, if applied early and given in accordance with the dosimetric method, may often work excellent results. I wish some one would try them when favorable opportunity offers, and report results. W. C. BUCKLEY, M. D.

723 Berks St., Phil., Pa.

## **Therapeutic Memoranda.**

### **CREOSOTE CARBONATE FOR APHTHÆ.**

Creosotal, the name now applied to this combination, has recently been recommended for the relief of aphthæ, the affected areas being painted with the pure creosotal five or six times daily.

In the case of impetigo the parts are thoroughly washed with soap-bark decoction, and the remedy applied with a brush.

**POTASSIUM PERMANGANATE FOR PHOSPHORUS POISONING.**—This remedy has attained quite a reputation for the relief of various forms of poisoning, one of the most important being phosphorus poisoning. One can readily understand how effective permanganate would be in a case of this character, especially where no oil had been administered, as coming directly into contact with the substance in the stomach, oxidation would be rapid and efficacious.

**NAPHTHOL FOR TYPHOID FEVER.**—Naphthol is now recommended in the form of an emulsion in the treatment of typhoid fever, instead of the solid form, but it is doubtful if it possesses any advantages over the plan of administering in the form of tablets, thoroughly triturated.

**CHLORALOSE FOR INSOMNIA.**—The action of chloralose in producing sleep, it is said, is due to its paralyzing effects upon the cortical areas, the nerve centres of the brain being unaffected, and it is further claimed that it has no perceptible toxic action. The minimum dose for an adult is about one and one-half grains, and is preferably given in the form of solution. Clinical reports are few, and the balance of favorable and contrary conclusions evenly drawn.

**MALARIA RELIEVED BY SPLENIC EXTRACT.**—A Frenchman, Dr. Cousin, has treated malaria successfully by the hypodermatic use of splenic extract. The extract is sterilized and filtered, and daily injections are given, beginning with fifteen minims and gradually increasing until as much as two and a half fluid drachms are administered. Usually about thirty-five days are required to effect a cure; but the plan has the disadvantage of producing abscesses. The injections give rise to increased flow of urine, more or less free perspiration, slight elevation of temperature, but on the other hand, the pain and swelling of the spleen diminish, the appetite increases as well as the strength and body-weight of the patient.

The foregoing is a most important observation, since it shows the virtues of animal products in this direction, and also confirms the views put forward by the writer, that the efficacy of these products is mainly, if not wholly, due to the influence of the contained nuclein. When the medical profession has learned the great value of nuclein medication in malaria, the disease will have been robbed of its terrors, and the sale of quinine will be materially lessened. *Apropos* may be

mentioned the fact that one of the best known and most enthusiastic investigators of malaria, living in one of the Southern States, has had the disease for twenty years and takes ten grains of quinine daily. Ordinarily, a drachm of the nuclein solution employed over a period of three weeks, five minims on alternate days, would effectually eradicate the disease. It would be necessary, however, to administer some remedy to counteract the effects of long continued cinchonism.

**THERAPEUTIC INDICATIONS OF STRONTIUM SALICYLATE.**—Dr. H. C. Wood has completed a series of physiological tests to determine the therapeutic virtues of strontium salicylate, and publishes the following conclusions (*Univ. Med. Mag.*, Jan'y, 1895):

With the knowledge acquired by animal experimentation it seemed to me entirely safe to use the strontium salicylate in medicine, and I have accordingly employed it in a large number of cases in doses of from 15 to 120 grains a day. The result of these trials is to show that in doses of 5 to 10 grains, given after meals, the salt very commonly improves digestion, and in the dose of five grains an hour after meals, in flatulent dyspepsia and various conditions of tendency to fermentative changes in the alimentary canal, it is a useful intestinal antiseptic, which has seemed to give better results than dosalol, naphthol, or other of the older intestinal antiseptic remedies. It does not produce cinchonism as readily as do the other salicylates, but it is entirely capable of causing a pronounced degree of cinchonism. I have not been able to test it in articular rheumatism, but it would probably be less efficacious than the ammonium salicylate. In muscular or subacute rheumatism, as well as in chronic gouty conditions with a tendency to digestive disturbance, I have found it to be a very valuable remedy, exerting the action of salicylate upon the diathesis, and improving instead of injuring the digestion. It may be given in solution, but is best administered in capsules; a five-grain capsule is of moderate size, and of these two or more may be taken at once. It is probable that it would be well administered in compressed tablets, but in this way I have not tested it. The taste of this salt is similar to, but distinctly less offensive than that of the ordinary salicylates, so that if preferred it may be given in weak solution.

## Current Literature.

**THE SPECIFIC ACTION OF ANTITOXINE.**—From a brief clinical paper on the treatment of diphtheria with antitoxine, by Dr. Augustus Caillé, of New York (*Am. Medico-Surgical Bulletin*, Dec. 1, 1894), we make the following extract: "As regards the specific action of antitoxine, the writer is unwilling to express a definite opinion as the result of personal experience in only nine cases, but is impressed with the fact that the results here tabulated are in harmony with the observations of others who have reported a marked decrease in the mortality of diphtheria when serum therapy was employed.

The first case of the nine was seen two hours before death, in a condition in which a specific therapy could under no circumstances have been of any avail, and this case, therefore, must be excluded; thus giving us a mortality of one in eight. A mortality of one in eight is not particularly favorable in an ordinary series of cases, but for selected and malignant cases the mortality is low; it being usually 50 per cent.

All of the cases reported were of a very severe type, not one being mild in its clinical manifestations. Only one case was seen at the very onset of the disease and promptly recovered after two injections of antitoxine without supplementary treatment, excepting attention being paid to cleansing the naso-pharynx with salt solution. All other cases were seen in an advanced stage of the disease, and it would have been unwise to omit supplementary treatment in addition to mild local measures and rely solely upon a supposed specific agent.

A reaction after the injection was noticed in most of the cases by a fall in temperature and re-establishment of sleep and appetite. No ill-effects of the nature of induration, suppuration or constitutional disturbances of an untoward nature have been observed following the injection. The diphtheritic pseudo-membrane disap-



peared very promptly in some cases, in others not so promptly. Periglandular infiltration subsided rapidly.

Assuming that the antitoxine is specific in its action, it is by no means to be inferred that all cases will recover. An acute diphtheritic sepsis will readily overpower an enfeebled constitution, and a robust constitution will offer resistance to the poison of infectious disease for a time, but will derive no benefit from late specific therapy.

Local treatment of diphtheria will always be indicated in all cases classed as diphtheria, including the so-called follicular tonsillitis, pseudo-diphtheria or membranous croup. Prophylactic injections are indicated in all conditions in which diphtheria is a frequent complication, *viz.*, in scarlet fever, measles, pertussis (and, possibly, also, previous to tonsillotomy and operations in the naso-pharynx).

**INFECTIOUS PROCESSES IN MENTAL DISEASE.**—Dr. Charles K. Mills, of Philadelphia, in an elaborate paper on this subject in the current issue of the *American Journal of the Medical Sciences*, advances the following conclusions:

1. Specific infection must be included among the causes of mental symptoms and disease which precede, accompany, or follow febrile and other infectious disorders.

2. Much negative evidence can be adduced in favor of acute delirium or acute mania being due to toxemia—such evidence as is afforded by autopsies which reveal neither gross nor histological lesions; and in these cases the toxemia probably overwhelms the patient before the production of meningitis or other disease.

3. Analogies with nervous affections which are known, or believed to be of microbic origin—such as multiple neuritis, myelitis and chorea—favor the view that insanities with similar or related phenomena or lesions are also microbic in origin.

4. The evidence afforded by careful bacteriological investigation of cases of acute insanity is thus far meagre, and shows that various micro-organisms may induce the same or similar types of mental disease.

5. The mental disorders of pregnancy and the puerperal state are probably in a considerable proportion of cases, toxemic, without reference to childbirth; but it cannot be regarded as proved that a bacillus of either eclampsia or puerperal mania is the sole cause of these affections.

**NATURE AND TREATMENT OF LEPROSY.**—Dr. R. H. L. Bibb, of Saltillo, Mexico, has recently published an interesting article upon this subject (*Amer. Jour. of Med. Sci.*, Nov. 1894), in which he recounts the observations of numerous authorities relating to the history and spread of the disease, while recording a synopsis of the various methods of treatment which have been recommended from time to time. The following extract from the closing section of his communication will prove of some interest to our readers:

“Although contradictory on many important points relating to the ‘nature of leprosy,’ it is believed that a proper appreciation of the facts and opinions recorded in the following pages warrant, with reasonable certainty, the following conclusions:

1. That leprosy is a specific disease, due to the presence of the *lepra bacilli*.

2. That leprosy is influenced by race, climate, soil, food, etc., only in so far as these environments tend to enervation on the one hand, or to physical well-being on the other.

3. That experiments have not demonstrated leprosy to be inoculable on man or beast.

4. That leprosy is hereditary.

5. That leprosy is contagious and communicable, under conditions not yet understood.

6. That leprosy is both mitigable and curable.

7. That chaulmoogra oil is a drug of unquestionable value in the treatment of leprosy.

8. That leprosy may be completely eradicated from the list of human ills.

**BACTERIOLOGY OF DIPHTHERIA.**—Dr. William H. Welch, Professor of Pathology in the Johns Hopkins Hospital, on behalf of the American Committee on Diphtheria, presented to the Eighth International Congress of Climatology and Demography a most elaborate report upon this subject, of which the following is a comprehensive summary :

1. The Health Department of New York has undertaken the bacteriological examination of all cases of suspected diphtheria in that city, unless objection is made by the attending physician, or unless it is not deemed advisable to disturb the patient by such examination. The methods employed are described in detail (*Amer. Journ. Med. Sci.*, October 1894). During the year ending May 4, 1894, cultures were made from 5611 cases of suspected diphtheria. The results have proven satisfactory, and are utilized not only for diagnosis, but also to control the supervision and isolation of the cases.

2. Of 6156 cases of suspected diphtheria in New York and Boston, 58½ per cent. were proven bacteriologically to be true diphtheria—or if we include only those cases in which the bacteriological examination was considered to be entirely satisfactory—of 5340 cases, 67½ per cent. were true diphtheria. These were pseudo-membranous inflammations of the throat and air-passages, uncomplicated for the most part with scarlet fever.

3. At least 80 per cent. of the cases of membranous croup in New York were diphtheria, and only 14 per cent. were shown not to be diphtheria.

4. Fifteen cases of fibrinous rhinitis, and four cases of primary and exclusively nasal diphtheria were all due to the diphtheria bacillus.

5. Various forms of atypical diphtheria, many without membrane, and with the characters of simple catarrhal angina and follicular tonsillitis are described.

6. Instances of unusual localizations of the diphtheria bacillus, as in the middle ear, in wounds, ulcers, abscesses, conjunc-

tivæ, lungs, heart-valves, and the distribution of the bacilli at autopsies of human beings and of guinea-pigs dead of diphtheria, are described.

7. The various bacteria found associated with the diphtheria bacillus, the most important pathogenic forms being streptococci, staphylococci, and the diplococcus lanceolatus, are considered.

8. In general, the great majority of cases of pseudo-membranous anginas in scarlet fever are due to streptococci, but where diphtheria is prevalent, and opportunities are favorable for exposure to diphtheria, a large proportion may be due to the diphtheria bacillus. The statistics in Baltimore and in Boston present interesting contrasts in illustration of this point. Four cases of diphtheria complicating typhoid fever are described.

9. The name pseudo-diphtheria is applied to pseudo-membranous inflammations of the throat and air-passages not caused by the diphtheria bacillus. The most important and common micro-organism in pseudo-diphtheria is the streptococcus pyogenes, but other bacteria may be the cause. The mortality in these affections is low in private practice, being 1.7 per cent. in 408 consecutive cases in New York. In hospitals it may be as high as twenty-five per cent. Death is generally due to some complication, the most important complications being scarlet fever, membranous laryngitis and broncho-pneumonia. The disease seems to be only slightly, if at all, contagious. For this reason, and on account of the low mortality in uncomplicated cases, those which are proved bacteriologically not to be true diphtheria, are not kept under supervision by the Health Department in New York. Until such proof, suspicious cases are treated as diphtheria.

10. Of 752 cases of diphtheria in New York, the diphtheria bacilli disappeared within three days after the complete disappearance of the exudate. In 427 cases the bacilli persisted for a longer time, viz.: In 201, from five to seven days; in 84, for twelve days; in 69, for fifteen days; in 57, for three weeks; in 11, for four weeks, and in 5, for five weeks. In one case, virulent bacilli were found seven weeks after disappearance of the exudate. The cases are kept under supervision until the

bacilli have disappeared. Sometimes they disappear first from the nose; at other times, first from the throat.

11. In fourteen families with forty-eight children, where little or no isolation of a case of diphtheria in each family was undertaken, virulent diphtheria bacilli were found in 50 per cent. of the children, of whom 40 per cent. later developed diphtheria. The bacilli were found in less than 10 per cent. of the children in families where the case of diphtheria was well isolated.

Antiseptic irrigation and cleansing treatment of the throat lessens the liability of those thus exposed to develop diphtheria.

All members of an infected household should be regarded as under suspicion, and where isolation is not enforced, the healthy as well as the sick should be prevented from mingling with others, until cultures or sufficient lapse of time give the presumption that they are not carriers of contagion.

12. Diphtheria bacilli may be present and multiply in the throat without causing symptoms or lesions. They must find susceptibility to their pathogenic action in order to cause diphtheria.

13. In 330 persons who gave no history of direct contact with diphtheria, virulent diphtheria bacilli were found in eight, of whom only two subsequently developed diphtheria. Bacilli, indistinguishable morphologically, or in cultures, from the diphtheria bacillus, including the formation of acid in forty-eight hours in bouillon, but entirely devoid of virulence, were found in twenty-four of these persons, in most of these instances in large numbers. The pseudo-diphtheria bacillus was found in twenty-seven.

14. Instances are given in which the diphtheria bacilli were found on various objects outside of the human body, viz., bed-clothing, soiled with discharges of diphtheria patients; the shoes and hair of nurses in attendance on diphtheria patients; and a brush used in sweeping the floor of a diphtheria ward.

15. Some of the various ways in which the diphtheria germ is transported, are summarized.

16. A bacillus in no way distinguishable in morphology or in cultures, including the formation of acid in bouillon, from the usual diphtheria bacillus, but devoid of virulence, exists. The virulence was tested by injecting into half-grown guinea-pigs one-half to one per cent. of

their weight of forty-eight hour bouillon cultures. This bacillus, although it has been called by some investigators the pseudo-diphtheria bacillus, should not be so designated. It is the genuine diphtheria bacillus devoid of virulence. It was met with in a comparatively small number of cases out of a large number examined. Exceptionally it may occur together with the virulent diphtheria bacillus in diphtheria, and occasionally it takes the place of the virulent bacillus during or after recovery from diphtheria. In several instances, it was found in healthy throats.

COURAGE IN PEDIATRIC THERAPEUTICS.—DR. A. C. Cotton, of Chicago, publishes in *The Journal of the American Medical Association* for Dec. 1, 1894, an aggressive communication entitled "Some of the Causes of Therapeutic Uncertainty in the Treatment of Children," and condemns in no uncertain terms the present regime, closing with the following appeal to the profession:

"The time is ripe for a long stride forward in pediatric therapeutics. The prevailing belief that the physician can do but little to control the course of disease in children must be positively and emphatically refuted by definite results. The physician must compel respect for his art, and compliance with his requirements, by painstaking, exhaustive diagnosis and elaborate care in the details of his management and treatment of every case. Parents must be shown the wicked folly of using the doctor and his "nasty medicine" as a bugbear with which to coerce refractory children in health, and taught that in sickness he must be allowed absolute control of the patient and every detail of the treatment. A trained and experienced nurse must be made an important factor in every possible instance. The plea of lack of time to attend to details must be regarded as an admission on the part of the physician that he has no right to undertake the case. The objection to expense must be considered an admission that the life is of little value to the parent. Absolute certainty as to what is administered, how and when, based upon an accurate diagnosis, is the only road to certainty in therapeutics, even if we have to prepare and carry our remedies to the bedside and administer with our own hands. Have we the energy to carry out our convictions! Have we the *courage*?"

## Book Notices.

**A SYSTEM OF LEGAL MEDICINE.** By ALLEN McLANE HAMILTON, M. D., Consulting Physician to the Insane Asylums of New York City, etc., and LAWRENCE GODKIN, Esq., of the New York Bar. Vol. II. Cloth, 8vo., pp. 738. New York: E. B. TREAT, 1894. Sold only by subscription. (Price, \$5.50.)

The first volume of this excellent and timely work received a favorable notice in these columns some months ago, and the reviewer takes this opportunity of congratulating the editors and the publisher on its completion, not to mention its numerous valuable features. That it will be accepted as authoritative by both the medical and legal professions there is no doubt, and that it will be the means of doing much towards fostering a closer relationship between the two, is a foregone conclusion, since greater familiarity with legal matters by the medical profession will teach them their needs in this particular branch.

Among the articles most likely to attract the attention of the general practitioner should be mentioned the following: Duties and responsibilities of medical experts, mental responsibility of the insane in civil cases, insanity and crime, on the relations of mental defect and disease to criminal responsibility, and accident cases. Others also might be mentioned: Feigned diseases of the mind and nervous system, abortion and infanticide, marriage and divorce, sexual crimes, and surgical malpractice. A number of valuable and instructive plates are interspersed throughout the work, one of which, at least, deserves notice, namely, the microscopic appearance of brain of epileptics, showing cellular degeneration. In addition to six plates, there are seventy-eight wood-cut illustrations. An appendix of fifty pages contains a record of the revised statutes of different states, and the entire work is completed by the insertion of an elaborate index of fifty-eight pages.

**LECTURES ON AUTO-INTOXICATION IN DISEASE, OR SELF POISONING OF THE INDIVIDUAL.** By CH. BOUCHARD, Professor of Pathology and Therapeutics, etc., Paris. Translated with a Preface, by THOMAS OLIVER, M. D., Professor of Physiology, University of Durham, etc. Cloth, 8 vo., pp. 302. Philadelphia: The F. A. DAVIS Co., 1894. (Price, \$1.75 net.)

Although the title of this book is slightly misleading, a careful perusal of its pages shows that it is clear in definition.

The book, containing thirty-two lectures by Bouchard, appears at a time when the subject is but little understood, and the author's views have opened the way to a free discussion of the subject. While we may differ from his teachings it will be proven or their fallacy demonstrated by others who take upon themselves the task. The scope of the work is elaborate, and covers an extended field, the author handling the various topics in a very comprehensive manner, and drawing conclusions from a wide source of knowledge.

The author claims that auto-intoxication in disease is due to the accumulation of, and the poisonous effect produced by, self-retained secretæ (more properly excretæ). He refers to seven poisonous principles that are contained in the secretions of the kidney, and indicates how these seven substances kill the human structure, why they kill, and to what extent the portions of the human body are affected by these products. Reference is also made to the conditions produced by other excretæ, the manner of preventing the formation of these poisons, and to their elimination after they are formed.

J. A. C.

**PRACTICAL URANALYSIS AND URINARY DIAGNOSIS.** By CHARLES W. PURDY, M. D., of Queen's University. Illustrated. Cloth., 8vo., pp. 357. Philadelphia: THE F. A. DAVIS Co., 1894. (Price, \$2.50 net.)

For many years, in this country, Tyson's work has been used by students and by a large percentage of the profession, but the present volume, being more elaborate, promises to become a strong competitor

The book is printed on excellent paper, the illustrations, many of them of a superior class, and now that uranalysis is daily becoming of more importance, it will doubtless prove a "handy" volume for the physician's table.

We cannot close this brief reference to the author's work without emphasizing the great need for greater familiarity with this subject. Not only as a means of diagnosis, but in arriving at a definite prognosis in many obscure diseased conditions, uranalysis constitutes an efficiently whose value can scarcely be overestimated. Again, in the matter of life insurance, the experience of the older companies shows that it has become almost a necessity, even where the amounts applied for are comparatively small, kidney disease being a frequent ailment that is readily overlooked in a cursory examination of an applicant. It is not unusual to find the first distinct evidences of tuberculosis in the urinary sediment, and in suspicious cases, where the tubercle is absent from the sputum, a thorough examination of the urine should be made. But this is not all. It is not improbable that many cases of illness may be due to occult causes, where an analysis of the urine would throw additional light upon the morbid complex, and it is also within the range of possibilities that renal disease might be traced to injudicious medication, and it is hoped this hint will not be lost sight of by the medical profession. In view of the reliable character of Dr. Purdy's contribution to medical science and the advantages which will accrue to its possessor, we bespeak for the book a wide circulation.

**MANUAL OF MODERN SURGERY, GENERAL AND OPERATIVE.** By JOHN CHAMERS DaCOSTA, Demonstrator of Surgery, Jefferson Medical College. Illustrated. Cloth, small 8vo., pp. 809. Philadelphia: W. B. SAUNDERS, 1894. (Price, \$2.50 net.)

As stated in the preface, the author has endeavored to produce a work which shall stand between the complete but cumbrous

text-book and the incomplete but condensed compend, and in this effort he has succeeded admirably, although modern surgery is quite different to-day from the surgery of ten years ago. Indeed, the present volume is far more exhaustive than any that appeared previous to 1880, and, from a somewhat cursory examination of its pages, it has required more time and patience in the compilation than any work heretofore published by any single author. Very fully chapters are introduced upon all the modern surgical features liable to demand the attention of the profession, and the reviewer takes great pleasure in commending it to both students and practitioners because of its reliable teachings, and further, because of its containing accounts of the most recent authoritative investigations.

THE *North Carolina Medical Journal* signals the new year and the advent of its XXXVth volume by a change of dress and style of make-up, and promises to visit its readers semi-monthly hereafter, with a budget of choice medical literature guaranteed. Good luck to enterprise!

THE *Vermont Medical Monthly* makes its initial appearance this month. It is a 32 page octavo magazine, of fair make-up, and possesses a promising staff of ten editors. There is room in the New England States for more local journals, and the introduction lately of aspirants in Maine, Rhode Island and Maine shows that the opportunities are to be realized.

WE LEARN with much regret that insufficient support in the way of subscriptions may compel Mr. Geo. S. Davis to discontinue the publication of the *Index Medicus*. We hope this possible suspension will be averted. The publication is hardly of sufficient service to physicians to justify individual subscriptions; but every one of the hundreds of local medical societies in this country should have the *Index* on file, and we trust this support—which alone would probably be ample in this emergency—will be promptly enlisted. The two hundred odd medical journals of the United States should also subscribe, and have the *Index* available for staff and contributors. THE AMERICAN THERAPIST, for one, promptly tenders its subscription of \$10.00, and calls on other publishers to follow suit. The *Index Medicus* is a most creditable exponent of American work in medical science, and it must not lack of home support.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### THE PHILOSOPHY OF THE PHYSIOLOGICAL ACTION OF DRUGS.

By J. LEFFINGWELL HATCH, B. Sc., M.D., F.R.M.  
S. (London).

Visiting Physician to the Harlem Dispensary, Assistant Laryncologist to the New York Nose and Throat Hospital, formerly Lecturer on Bacteriology in the University of Pennsylvania, and late Sanitary Inspector of the Port of Antwerp, Belgium, in the U. S. Marine Hospital Service, etc., etc.

Concerning the time when man first began to speculate as to how the functions are affected by medicaments, and what conclusions were drawn therefrom, history is eloquently silent. Physiology, as we know it, was beyond the mental horizon of the ancients, and only a portion of what we know as physics being then termed physiology, from the two Greek words *φύσις*-nature and *λόγος*-discourse: Literally a treatise on the laws of nature.

Just when this word was appropriated for that science which has to do with the study of functions, we are also unable to say with certainty; but until the discovery of the circulation by Harvey, fifteen centuries after Galen had shown that the arteries contained a fluid instead of air,\* physiology was as much a form of mysticism as the doctrines of the scholastics, and it seems equally as reasonable to argue as to how many angels can dance on the point of a needle, as to speculate on the oscillation of spirits through empty tubes in our bodies.

It is only at the commencement of the present century that we begin to see the

formation of a solid basis for the more intricate superstructure that is to occur, when Bichat elaborated his ingenious principle of general anatomy, that he drew from his studies of the anatomy of Vesalius, fragments of truths intermingled with hypotheses like most things of the middle ages, the way to which had been paved by the system of Galen, who in turn drew largely from the Alexandrian school, the first to base its theories upon the anatomy of man, many of whose valuable records perished in that lamentable fire of the library at Alexandria.

These gross studies led many minds to consider what the ultimate minute anatomy might be that constituted these larger tissues. Bacteria had long been described and demonstrated by Leuwenhoeck, a naturalist of Holland, who worked with small bi-concave lenses, and published the results of his studies at Delphis Batavorum in 1680, in a work entitled *Arcana Naturae Detecta*. But to Schleiden was reserved the honor of discovering the cell, in 1835, which is the basis of our modern histology.

What Schleiden did for vegetable life, Schwann adapted to the animal; and Goodwin, in 1848 in England, and Virchow, in Berlin in 1858, so modified these observations that with a few alterations, such as to the theory of cell-division and origin, they remain practically the same.

When science reached this point, when it recognized that "the cell is really the ultimate morphological element in which there is any manifestation of life," when it proved conclusively to itself that the highly differentiated organism was but the union of mere amebae, and that the special functions of organs all reside in the

\* Galeni Opera, Aer in Arteriis Natura Sanguinis contineatur, Cap. VI. A. D. 150.

primitive cell, drawn out solely by necessity, affected by environment, and adapted to the morphology thus produced, then, at this auspicious moment, was science moved with great parturient throes, and Physiology was born.

From this moment many men in many climes have been working steadily in the laboratory, and at the bedside, until we have our physiology of to-day.

Coupled closely with this purely biological science is that of the study of medicines as they affect these functions, and known to us under the title of *physiological action*.

The physiological action of all drugs is traced to either the stimulation or paralysis of some nerve-centre or nerve-ending. How this takes place no one has as yet satisfactorily explained, and the majority of observers are satisfied when they have traced the relation of a drug ingested to some physiological manifestation, and draw at once a conclusion from cause and effect—"post hoc propter hoc."

It is in the interest of philosophic medicine that I offer the following theory, that until it can be refuted or a better one substituted answers the vexed question.

Disease has been defined by many men in many words, but the tersest definition of all is, "imperfect organization in imperfect action." I like this definition on account of the movement expressed by the word action; but the definition is lame in that we may have disease and not have an imperfect organization, just as we may have a perfect watch that refuses to run but needs only oiling or untangling of the hair-spring to set it going again; so I shall use here the definition of my old master and friend, Prof. GUITERAS, who says, "By disease we mean all those modifications of the normal manifestations of life which impair more or less the adaptability of the individual to the surrounding media."

Now, these modifications of normal manifestations are known as impaired function, and are preceded by changes of structure, themselves being brought about

by a primitive obscure alteration of function. Function, of whatever nature, is controlled by the nervous system, so it is through this channel that relief must come when the function is altered.

Medicines, however taken into the system, are absorbed by the circulation and carried to those parts on which they act, producing certain physiological results. All are not in the same state as when ingested, for coming in contact with other elements and compounds, either bring about a direct action or a catalytic one. The blood itself must be affected in its electrical condition by the imbibition of the most benign substance, so that the normal polarity of elements composing the parts through which it flows must be also affected. These effects as they occur from time to time give rise to those phenomena which are termed disposition or feeling. After a particular meal one is in a condition of "bien faisance," because the reaction is a pleasant one, the changes in the blood have produced harmonious changes in polarity wherever they have gone and the organism is in a normal condition.

After another meal there may be uneasiness or pain; this is due to the changes in the blood producing discordant changes of polarity where they have gone and the organism is in a pathological condition.

Thus our normal functions, as well as our pathological, are due to a change in polarity of juxtaposed atoms. Now this change of polarity entails motion, and this oscillation of plastidules in cells to satisfy polarity is of the kind we designate vibration. Thus we see that stimulation and paralysis are phenomena produced by undulations. At first sight it may appear paradoxical that two such opposite results can be due to the same cause; but let us pause for a moment and look elsewhere in nature. Take for example the solar spectrum. Here we have a range of different colors all the way from red to violet, and outside of these limits we have

heat lines and others that are imperceptible to some of our senses but are capable of producing definite reactions. We may then, for the sake of comparison, put stimulation in the place of the heat rays, and paralysis beyond the violet in the place of the actinic rays, while between the two there is a large scale where one gradually merges into and blends with the other stimulation, being due to a lesser number of vibrations than paralysis.

In both instances the atoms of the cells (the plastidules) move to and fro, but in the case of stimulation they move farther than in paralysis, and consequently are slower in the former than in the latter, so that in the case of light, when we get beyond a certain number of vibrations we can no longer discern them; likewise when the vibrations that cause stimulation become too numerous we can no longer appreciate them, and paralysis results.

The different cells of the body have a selective affinity, just as the elements elsewhere in nature, so that given a certain cell, a collection of similar cells, and they will be only affected by certain other elements or combinations of these elements. So, also, certain of these elements and compounds will act more forcibly than others of the same group because the affinity between them and the cells is greater. This affinity, like electrical attraction elsewhere in nature, is due to opposite polarity or a forced dissimilar polarity by means of conduction. It is passed on from cell to cell of a like polarity and causes naturally a vibratory movement, *and it is the effect of this movement that we designate physiological action*, the intensity of which depends upon the amplitude of the vibrations engendered.

Let us take as an illustration, the physiological action of opium upon the respiration. It has been found by experiment that death from opium, in the majority of cases, is by failure of the respiration. If the pneumogastriacs are cut and the drug then administered, death from failure of respiration occurs and must be due to its

action upon the respiratory centre in the medulla. Now, why does opium act upon this centre rather than upon the pneumogastriacs; or, if it does act upon them at all, why is it not as intense in the one case as in the other? The answer lies in the proposition just laid down, that the selective affinity between the cells forming the respiratory centre in the medulla and opium, or rather the changed electrical condition of the elements composing the blood after the ingestion of opium, is greater than the affinity between the cells of the pneumogastriacs and the same. The attraction is so great and the wave caused by the resulting vibrations so intense and rapid that paralysis ensues with resulting suspension of respiration.

The illustration of this single drug, I think, will be sufficient to make my theory clear. I could bring before you the entire pharmacopeia, but it would be to merely repeat the above example. The principle has to do alone with one of the primordial factors of cell-life, namely the electrical condition.

We are but yet on the threshold of the knowledge of the ways and means of electricity and its relation to life, and perhaps in the dim uncertain light of the present we are overlooking great factors, on account of their seeming simplicity, that to the clear sight of the future seers will seem as plain as the principles of the telephone and phonograph to us after Edison led us over the "*pons asinorum*."

2010 Fifth Ave., New York.

**BENEFITS OF A MEAT DIET.**—In older countries the lower orders, as a rule, have but a low vitality. It may be truer to say that the vital volition is weak. Let the learned settle the definition. The fact is easily accounted for. During generations upon generations the majority of European agriculture populations lived upon vegetable food, like the majority of Eastern Asiatics, and with the same result. Hard labor produces hard muscles, but vegetable food yields a low vital tension, so to say. Soldiers know it well enough. The pale-faced city clerk who eats meat twice a day will outfight and outlast and outstarve the burley laborer whose big thighs and sinews are mostly compounded of potatoes, corn and water.—*The Century*.



## *TINCTURE OF CANTHARIDES IN CHRONIC BRIGHT'S DISEASE.*

By ERNEST B. SANGREE, A.M., M.D.

It may strike some as rather trivial to make a report of a single case, but if that case is one in which there was a logical and demonstrable relation of cause to effect, such a case seems to be eminently worthy of a memorandum.

Some four years ago, H. D., thirty-eight years old, while at work near a lathe, had the band of his trousers caught by the machine and rapidly wound up until he was very severely squeezed around the waist. The tension was so great that the band of his trousers had begun to tear, when just at that moment a workman stopped the lathe. He had severe pain in the abdomen around the line of pressure, and was disabled for the rest of the day. He worked the two succeeding days, however, and then while stooping and lifting hard, he felt something "give" suddenly in the abdomen, and was compelled to stop at once, and could go back to his work no more.

About three weeks after this accident his abdomen began to swell, and his feet also, so that for two weeks he could get nothing but overshoes on his feet. After that the edema of the feet was not so bad, but they regularly swelled every day. The abdominal swelling—at least, later on—was caused by gas, as the abdomen might be tense one day and flaccid the next. He also suffered considerable pain in the left side just under the ribs—the locality of the greatest squeezing.

For several years previously, he says, his feet would swell a little in summer when he would sit about the house without shoes and stockings, but in winter they would not swell at all. It seems possible, therefore, that there had been a low grade of chronic Bright's existing, and that the severe injury set up an acute attack, and this later continued as a chronic, but much more marked condi-

tion. However, if there were a preëxistent inflammation, it must have been very slight, as he was conscious of no trouble, and daily performed heavy laboring work.

During and after the acute attack, he received almost continuous medical treatment, going as soon as he was able from one hospital to another, seeking some treatment that would cure him, but steadily growing weaker. At the time, I saw him twenty-one months had elapsed since his injury, and his general bearing and look were most characteristic of his condition; he was too weak to walk four blocks from his home without a long rest and serious doubts as to his having strength enough to get back. His urine, which was not apparently abnormal in quantity nor quality, showed a large amount of albumin.

I put the patient on tincture of cantharides, one drop four times a day, the tablet triturates being used. At the same time I ran a smart faradic current between back and abdomen on a level with the kidneys, doing this chiefly in order to keep the patient interested long enough for me to make a fair trial of the cantharides, and not because I expected any results from the electricity. In a few weeks he began to improve, the swelling of the abdomen was reduced and the pain relieved, until finally these both disappeared. Hand in hand with this improvement he grew stronger, until at the end of about four months he felt able to work again.

A position was gotten for him as janitor of a building, in which, though the work is not as heavy as that he formerly performed, yet he has considerable physical exertion. This place he has now held steadily for two years, and at a recent examination he tells me that his day's work does not especially weary him.

A careful survey of this case allows us, it seems to me, to dispense with the notion of a mere coincidence, and requires us to grant that the improvement was due to the measures employed; and as the only agents used, with the exception of a little

medicine for constipation and indigestion, were tincture of cantharides and faradism, the question is narrowed to them. As I do not see what influence the latter could have had, it follows that the man owes at least two years of comparative health and of usefulness to himself and his dependent family, to the tincture of cantharides.

If that is so, how did it act?

A recent examination of his urine shows, I think, about as much escaping albumin as there was two years ago. His weakness in the main, therefore, could not have been due to the loss, nor can his present strength be due to the conservation of that substance. It seems to me probable, therefore, that the renal inflammation was of the parenchymatous variety, and that his condition was due to a toxemia dependent on an inability in the kidney epithelium to eliminate in the wonted manner certain poisonous excrementitious substances. It is likely, then, that the small but continuous doses of tincture of cantharides proved just enough of an irritant to the renal gland-cells to stimulate them into the performance of at least a part of their normal function, and thus relieved the blood and other tissues of this poisonous incubus.

2020 Arch Street, Philadelphia.

#### **A REPORT SHOWING THE SPECIFIC ACTION OF NUCLEIN IN FOLLICULAR TONSILLITIS.**

By J. MOUNT BLEYER, M.D.

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Surgeon to the New York Throat and Nose Hospital;  
Surgeon to the German West Side Clinic, etc.

Since the day of Jenner's discovery of securing immunity from that dread disease, smallpox, by means of inoculation, there has appeared no acceptable theory more fascinating than that based upon cellular-therapy—or another, that of serum therapy—in the treatment of diphtheria and allied diseases, namely, pseudo-diphtheria and follicular tonsillitis. Both methods have the merit of being based upon strict-scientific deduction, and serve to il-

lustrate the marked familiarity which obtains in respect to the various forms of diseases of the throat; at the same time, it shows the appreciation which is manifested by the profession as to their dangers.

Diphtheria, pseudo-diphtheria and follicular tonsillitis occupy a position of no small significance among the zymotic diseases, and the fact that they show a disposition to increase in frequency and severity in spite of advances in sanitation, demands that the means for combatting their ravages should be extended as rapidly as possible. These disorders have, of late years, received a large share of attention, but the exact conditions relating to their origin have yet to be accurately defined. The medical profession cannot adequately express its thanks and its indebtedness to the epidemiologists, through whose labors much valuable material has been gathered relating to their history, the peculiar character of the infection and its transmission; and they have also suggested valuable means for preventing the spread of such diseases. There still remain, however, many *lacunæ* to be filled, as for example, their relations to allied diseases of the throat, their possible connection with animal diseases, their association with insanitary conditions of the "pythogenic" class, together with the problems that arise in connection with outbreaks in small communities in rural districts, as compared with those developing in densely populated sections, towns and cities. These are points of the greatest moment and importance, although they are related to measures for prevention rather than cure. For the latter, medical science must supply the solution of the problem. It will be necessary, first, to garner the facts which have been so long accumulating concerning the pathological characteristics of the disease, because, if we are in a position to affirm with confidence that we know the nature of a disease, there is then room for hope that the means will be found to combat it.

Up to the present time, the sciences of bacteriology, pathology and chemistry have provided us with the requisite knowledge by which we are enabled to distinguish between the several forms of diphtheria (if they are not closely allied?); nevertheless, the modern treatment is distinctly indicated in whatever form it presents. This requires us to draw upon the accumulated evidence in favor of serum therapeutics, originally offered by Continental physicians, and upon cellular therapeutics, first elaborated in America. If clinical experience is to be permitted to count for anything, and it is, after all, the practical outcome of our striving—why not employ these remedies wherever their virtues have been demonstrated in overcoming the disease?

I find it unnecessary to dwell on the grounds upon which serum therapy and cellular therapy are based. They are both so recent and so fresh in the minds of the profession as to require no recapitulation. Suffice it to say, that these methods are strictly in accordance with the prevailing acceptance of the nature of diphtheria and its allied affections and the facts concerning the antagonism to bacterial poisons which have been repeatedly established through laboratory research. If the results of recent investigations are confirmed by more extended trials, the gain to our power over disease will, indeed, be great. The present methods may be very crude, and we may look hopefully forward to the time when they will be more refined, but unless the whole fabric of bacteriology is unsubstantial and visionary there is every reason to believe that a path has now been opened which may lead to the mastery of those acute infectious diseases whose virulence has wrought more havoc to mankind than can well be estimated.

The time has now arrived when the different methods will be tested clinically throughout the entire medical world, and upon a scale commensurate with their importance. That it is a question not

easily determined, must be obvious to all. It involves, among others, questions of diagnosis, of dosage, of effects due to the remedy *per se*, and of the proper estimation of the results as regards the natural course and terminations of the disease. Such an inquiry, to be thorough, must take into account as fully as possible the clinical and pathological history of the different forms of diphtheria, not only during the particular period in which the methods are in active operation, but over a considerable period prior to this. Considering the importance of the matter at issue, we can still afford to wait for a more definite decision upon these important questions.

Looking straight before me at these correlated facts, I am frank in expressing my appreciation of the clinical advantages afforded by cellular therapeutics in my recent clinical work. Nuclein has, beyond a doubt, established for itself a lasting place among our resources in combating these forms of diphtheria, and especially follicular tonsillitis. In the November number of this journal, I reported four cases of true diphtheria treated by subcutaneous injections of nuclein solution (an animal extract, Dr. Aulde's formula), which has since been duplicated by a second report of five more successful ones.\* Among the cases reported were forty-eight of follicular tonsillitis and pseudo-diphtheria. Again, here, I have an additional report to make of thirty-five cases of follicular tonsillitis of different grades of severity, all cases recovering in the short space of twenty-four hours from the time of beginning treatment by nuclein injections.

This defensive proteid (nuclein) is now, without a doubt, entitled to the distinction of being named a specific in this form of throat affection, as among all the cases

\* Reported in a communication to the Academy of Mexico, under the title, "Nuclein as a Defensive Proteid: Its subcutaneous administration in the different grades of diphtheria, accompanied by a clinical report of fifty-three cases."

referred to, not one remained unrecovered beyond the schedule time, and recovery was complete. In a child from five to twelve years of age, nuclein solution in five minim doses injected into the tissues of the flank, and repeated in twelve hours, two doses only, will be found sufficient to counteract all the constitutional symptoms present in this malady. In the adult, a larger dose is required, from eight to ten minims. I have yet to find one case of follicular tonsillitis, where these injections were given as above, that had not recovered within the time specified.

Nuclein possesses, as I have stated in my communication to the Mexican Academy, besides its specific action, another advantage, viz., that of a dynamogenetic power, increasing the vigor of the central nervous system.

If the remedy be applied under strict antiseptic conditions, no evil effects can possibly occur. Out of the many hundreds of injections I have made, not one patient has suffered from any untoward symptom. A special syringe, easily sterilized, should be kept for the purpose.

Since I am now so certain of the specific action of nuclein solution in the treatment of follicular tonsillitis, I usually combine with it the use of a mouth-wash, consisting of a four-volume solution of Marchand's peroxide of hydrogen with a small quantity of lime water; with this solution irrigation is practiced where a gargle proves ineffectual. I am satisfied, from my observations, that we can thus now cope successfully with the worst type of the malady.

I do not wish to stop here without a word of encouragement as to the use of nuclein solution in all other forms of diphtheria, as it has proven a staunch friend, second to none, if applied intelligently in the early stage of the disease. I hope within a very short time to be able to give a more extended report, covering investigations now in progress, with a view to determine the comparative value of nuclein and antitoxine, and serum without the culture.

460 Lexington Avenue, New York.

### *SOME FACTS ABOUT DIPHTHERIA, AND ABOUT SOME OF THE UNPLEASANT EFFECTS OF THE NEW REMEDY, ANTITOXINE.*

By J. LINDSAY PORTEOUS, M.D., F.R.C.S., Ed.,  
Physician to St. Joseph's Hospital, Yonkers, N. Y.

That medical science, especially that branch which reveals to us what has been hidden since the world began, namely bacteriology, has, within the past few years, revolutionized our pet theories, and pushed aside our favorite methods of treatment, no one can gainsay. We can well remember in our student days that it was considered an impossibility for diphtheria and scarlet fever to exist in the same person at the same time. Now we know differently. We could relate several cases, but let one suffice.

A boy was brought into the hospital suffering from a well-marked attack of scarlatina. On the second day a "wash-leather" patch was seen on the tonsil, but this is not unusual in scarlatina, and such cases may not be diphtheritic. A bacteriological examination, however, showed the diphtheria bacillus. A case is reported where a boy had an ordinary attack of scarlet fever with severe rhinitis. In due course, the symptoms disappeared, but during convalescence, the rhinitis reappeared. A bacteriological examination of the nasal discharge was made, and true diphtheria bacilli were found.

This shows that it is very necessary to have a bacteriological examination after an attack of scarlatina and rhinitis.

It is recorded by Warburn and Hopwood, during a series of experiments, that a boy suffered from coryza with a moderate nasal discharge. He, however, soon recovered from this, and nothing more was thought of it, till some cases of diphtheria broke out among his companions. A careful clinical observation showed nothing abnormal, but the examination of the bacteriologist revealed the presence of diphtheria bacilli.

I have often thought that diphtheria ba-

cilli could live and multiply in the throats of those in constant attendance upon developed diphtheria cases; I recently took a culture from a person residing in a house where diphtheria was present, but the person herself felt quite well, and this culture was proved to contain numerous Loeffler bacilli. The question arises, can these bacilli, which seem to have no effect upon the person who has them, transmit true diphtheria to another individual? We answer, certainly, especially if of the long variety. This has been satisfactorily proven. We think it would be a wise precautionary measure for both physician and nurse to thoroughly wash their mouths and throats with one or other of the numerous bactericides before visiting another patient.

As to the time when a patient who has had diphtheria can be considered safe with his family and others, it is impossible to determine. Thirty days is the time limit according to some boards of health; but again, that truthful censor, bacteriology, interferes, and demands that not until the last bacillus has been exterminated is it safe for the patient to mingle with the crowd.

Although there has been a great deal written about antitoxine in diphtheria, very little notice has been taken of the after-effects of serum therapy. In the *New York Medical Journal*, of January 12, 1895, the writer published an article, entitled, "The After-effects of Antitoxine." Therein it was noted that in all the cases coming under observation in which the antitoxine of the Pasteur Institute of New York was administered, a rash appeared in from three to ten days. At the same time, all these patients recovered, and the antitoxine did its work satisfactorily. In one case, following an attack of urticaria, pains resembling acute rheumatism persisted for several weeks, but were favorably modified by massage. Since writing that paper, it has been discovered that M. Moisard, at a meeting of the Paris Société médicale des hospitaux announced

that he had met with several such cases. Out of thirty-three cases of cutaneous manifestations, there were fourteen of urticaria, nine of erythema scarlatiniformi, nine of erythema polymorphum, and one of purpura. In my practice I have had cases of the first, second and fourth forms. Locally, Moisard had seen only one abscess in six hundred injections. I have not seen one case of abscess around the place of puncture. I have in these cases noticed slight, transitory erythema.

These general systemic disturbances point to some toxic action of the serum. The manager of the New York Pasteur Institute informs me that the serum of certain horses is more likely to cause those effects than that of others, and in this Moisard agrees. If the antitoxine can be separated from the serum, possibly none of these disagreeable symptoms would appear. But this is a difficult task, and will try the patience and skill of the bacteriologists for some time to come.

Is the treatment of disease by antitoxine new, or is it, like many other methods of treatment, only the revival of an old treatment? History tells us that Mithradates, the sixth king of Pontus (the Sun-given),—who was born, B. C. 120—lived in the constant dread of being poisoned, and that he accustomed himself to all the poisons then known. This produced a condition known as "Mithradatism." He had an antidote called a "mithradate," which was a compound electuary, supposed to have as its principal ingredient the blood of the Pontic duck. This duck was chosen, as it was thought to have lived on poisonous plants, which rendered it immune. If such be the case, history repeats itself, as the knowing Mithradates used the blood of an immune animal to immunize the blood of another animal not immune.

If antitoxine has the power to act as a prophylactic, the time it protects must be very limited, as the following case will show. On the 23d of December, 1894, Dr. Harrington asked me to see with him

a boy suffering from diphtheria. We agreed to administer to him antitoxine. We also thought it advisable to give a child, aged one year, who had been exposed to the infection, 2 ccm. of antitoxine. Twenty-seven days afterward the infant was seized with diphtheria, but not of a virulent type.

The following is another interesting case. G. B., aged 10, showed patches on the tonsils on the 22d of November. This patient was treated with nuclein, and all traces of the disease had disappeared on the eighth day. On the 19th day of January—fifty-eight days afterward—the membrane was first discovered, he again showed a membrane on each tonsil. Bacteriological examination revealed numerous bacilli. Antitoxine was administered and on the 22d, the membrane had entirely disappeared. It is now the 2d of February, and there are still abundant bacilli.

We think there can be no time fixed for the duration of the immunizing power of either antitoxine or a previous attack. Behring, we believe, gives three weeks as the time during which antitoxine affords immunity. Probably, as in vaccination, an attack after inoculation is less severe than if it had not been performed, but we question if perfect immunity for any time is secured.

The above are some of the peculiarities observed in my own practice during a recent epidemic, and probably may be regarded as novelties by some of the readers of the AMERICAN THERAPIST.

83 Warburton Avenue, Yonkers, N. Y.

INCUBATION PERIOD IN INFECTIOUS DISEASES.—According to the statistics gathered by the Clinical Society of London, the incubation periods in infectious diseases are as follows:

	Normal.	Maximum.	Minimum.
Variola.....	12 days.	14 days.	8 days.
Varicella.....	14 "	19 "	13 "
Measles.....	10 "	14 "	4 "
Rubella.....	18 "	21 "	8 "
Scarlatina.....	2 "	7 "	1 "
Influenza.....	8 "	5 "	1 "
Diphtheria.....	2 "	7 "	2 "
Typhoid fever....	12 "	23 "	5 "
Mumps.....	19 "	25 "	12 "

## A NEW CLASSIFICATION OF THE POSSIBLE TERMINATIONS OF EXTRA-UTERINE GESTATION.\*

By W. A. NEWMAN DORLAND, M.D.  
Instructor in Gynecology, Philadelphia Polyclinic.

My only apology for selecting as my topic the subject that has just been announced, is the avowedly chaotic condition of its literature, which it seems to me renders justifiable an attempt to evolve therefrom a system and order. As we all know, ectopic pregnancy has but comparatively recently assumed the prominence in abdominal surgery that is now generally recognized, and with our growing knowledge of a pathological state that is unique in its relationship to the broad fields of obstetrics and gynecology, forming as it does the connecting-link between the two—a purely *obstetrical* condition—demanding a purely *surgical* treatment—there has sprung up a vast amount of literature, much of which is but tautologic and but a small proportion of any intrinsic value. Having had occasion during the past few weeks to inquire into the question of the possible terminations of an extra-uterine gestation, I have endeavored, primarily merely for my own edification, to group the numerous pathological features that are from time to time revealed upon the operating-table, or at the bedside. The classification which I now offer is nothing more than a rational arrangement of phases of the disease that are well-known to all surgeons actively engaged in abdominal work. The deductions that I have drawn seem to be legitimate and I trust will bear further scrutiny.

Briefly, then, I find that in any given case of ectopic pregnancy, there are but three methods by which nature unaided can terminate such a gestation; these, enumerated in the order of their frequency, are: first, rupture with hemorrhage and

\* Read before the Barton Cooke Hirsch Obstetrical Society, and contributed to the AMERICAN THERAPIST.

frequently death; second, death of the product of conception, the so-called spontaneous cure; and third, continuance of the pregnancy to term.

Without entering into an elaborate study of these terminations and their respective pathological features, it becomes necessary to consider each separately for a moment in order to develop their various manifestations.

I. *Rupture*.—This, by far the most common termination of an ectopic pregnancy wherever situated, will, of course, in the case of ovarian and abdominal varieties take place directly into the abdominal cavity; in interstitial pregnancy it may occur either into the abdominal cavity, into the layers of the broad ligament, or very rarely into the uterine cavity. The varieties of tubal rupture, while numerous, may be grouped into two main classes, namely, *external rupture*, including those in which there is complete rupture of the tubal walls as well as of the walls of the gestation sac, and *internal rupture*, including those in which there is rupture of the walls of the gestation sac only without coincident rupture of the tubal walls.

Under the first heading, external rupture, may be mentioned the following distinct sub-divisions, instances of which have been accurately reported by authentic witnesses. These are enumerated in about the order of the frequency of their occurrence:

(a). *Rupture of the sac-wall with profuse hemorrhage into the abdominal cavity and speedy death*. This is undoubtedly the most common form of rupture, its usual site being the upper and posterior portion of the tube. The hemorrhage is unlimited in this variety.

(b). *Rupture of the sac-wall with limited effusion of blood into circumscribed spaces between bands of inflammatory lymph*. In this form of rupture are produced the so-called *pelvic* and *abdominal hematocele*. For many years these limited effusions of blood were unrecognized as bearing any

relationship to a preceding ectopic gestation, and it has only been within the past decade that this truth has been positively demonstrated. The most common situation in which the hematocele is found is Douglas's cul-de-sac, where it constitutes the so-called *retro-uterine hematocele*; if, as rarely occurs, the blood accumulates in the vesico-uterine pouch, the condition is termed an *acute-uterine hematocele*. Other hemorrhagic accumulations have been noted in the immediate vicinity of the broad ligaments, or wherever inflammatory adhesions may have formed between the pelvic or abdominal viscera.

(c). *Rupture of the sac-wall with effusions of blood into the meshes of the broad ligament*. This constitutes what has been termed *hematoma of the broad ligament*. The hemorrhage in this case is necessarily limited, that is, as long as the distended tissues of the broad ligament maintain their integrity. In many cases the pressure from the accumulated blood is so great that the thin layer of peritoneum yields, and the confined blood finds vent into the abdominal cavity (secondary abdominal hemorrhage). A fatal result often follows this accident.

In the second group, *internal rupture*, are likewise found a number of subdivisions, that are also presented in about the order of their frequency. These are as follows:

(1). *Rupture of a large vessel in the sac-wall with profuse hemorrhage into the gestation-sac itself and death of the embryo*. This condition is described by some writers under the term *hematoma of the sac*. Such an accident need not necessarily result fatally to the woman, but always results in the death of the product of conception. Usually it occurs early in gestation, and is therefore, as a rule, followed by absorption of the ovum.

(2). *Rupture of the outer or pelvic wall of the gestation-sac without coincident rupture of the tubal wall, with profuse discharge of blood into the abdominal cavity through the fimbriated extremity of the tube*.

This rather rare termination of tubal pregnancy has been very appropriately termed by Bland Sutton, *tubal abortion*. The hemorrhage may be excessive and may be repeated at varying intervals of time until the excision of the tube.

(3). *Rupture of a large vessel with effusion of blood into the sac walls themselves without penetration into the abdominal cavity or into the meshes of the broad ligament.* This condition is known as *hematoma of the tube*, and is not, as a rule, accompanied by a profuse loss of blood. The ovum dies and undergoes a process of atrophy and partial absorption.

(4). *Rupture of the inner or uterine sac-wall with discharge of the contents of the gestation-sac into the uterine cavity whence they are expelled as in an ordinary abortion.* This, the opposite of tubal abortion, and which may be termed *interstitial abortion*, since it is possible for it to occur only in cases of the so-called interstitial or tubo-uterine pregnancy, is an exceedingly rare termination of tubal gestation, and is even claimed by many writers never to occur.

II. *Death of the Product of Conception.*—This event will be followed by varying results, according to the period at which embryonic death occurs. If this happens prior to the third month of gestation, there follows complete cessation of the signs of pregnancy, with subsidence of any and all of the symptoms of the abnormal condition that may have been present. The ovum undergoes a process of absorption, and it and the gestation-sac may be entirely removed so that no trace of either as such can be found. There remains, however, a chronically diseased and distorted condition of the tube. This constitutes the so-called *spontaneous cure* of the extra-uterine gestation that is thought to occur in about one-third of the cases of this abnormal condition. Should embryonic death occur subsequent to the third month of pregnancy, as is the case usually in ovarian or abdominal pregnancy, and may exceptionally be noted in tubal gestation, such a termination as the

preceding could not be expected. Under these circumstances there will follow an absorption of the liquor amnii with partial atrophy of the gestation-sac, while various changes, such as maceration, calcification resulting in the formation of a lithopedion, mummification, adipoceration, or putrefaction, may take place in the fetus itself; or the entire gestation-sac may be converted into a large abscess-cavity, which may eventually rupture into the peritoneal cavity, the bowel, the bladder, or through the abdominal wall, subjecting the woman to all of the risks of septic peritonitis, septicemia and exhaustion from fetal and other fistulæ.

III. *Continuance of the Pregnancy to Term.*—This, when it occurs, usually takes place in an abdominal or ovarian gestation, although it is quite possible for a tubal pregnancy to be carried to term, the walls of the tube undergoing an enormous dilatation and the gestation-sac forcing its way down between the layers of the broad ligament to the pelvic floor, and then dissecting up the the posterior peritoneal reflection, behind which it continues to develop without interruption. Necessarily, this is an exceedingly rare termination of ectopic gestation. When it occurs the woman falls into labor at the normal expiration of pregnancy, but owing to the abnormal circumstances the pains are ineffectual, gradually passing away, and a variety of missed labor results with its peculiar sequelæ.

As a *résumé* of the foregoing, permit me to tabulate these terminations of extra-uterine pregnancy as follows:

I. Rupture.

(1). *External*,

(a). Into the abdominal cavity.

(b). Into the abdominal cavity between bands of adhesions (*pelvic or abdominal hematocèle*).

(c). Hematoma of the broad ligament.

(2). *Internal*.

(1). Hematoma of the sac.

(2). Tubal abortion.

(3). Hematoma of the tube.

(4). Interstitial abortion.

II. Death of the Product of Conception.

(1). Before the third month (*spontaneous cure*).

(2). After the third month.

II. Continuance of the Pregnancy to Term.

120 S. 17th St., Philadelphia.



**EXTRA UTERINE PREGNANCY.\***

By JAS. S. CHENOWETH, M. D., of Louisville, Ky.

This is a specimen removed six weeks ago from a patient of Dr. Fallis, aet. thirty-four years, mother of three children, labors normal. Some time after the birth of her last child she had some inflammatory trouble which laid her up for a couple of weeks. She was then in good health until two and a half months before I saw her, when she missed one monthly period, and two weeks later commenced having a little flow from the uterus accompanied by pain more or less severe. This continued for six weeks, there being a little discharge from the uterus and occasionally severe griping pains in the abdomen referred chiefly to the right side. At times the pain was so severe that she had to remain in bed for a day or two; again she would be comparatively free from pain for four or five days; then another attack would supervene. Two weeks before I was called, she was taken with pain more severe than usual which kept her in bed until the time I saw her. I found her temperature 103° F. in the mouth, skin cold and clammy, with mucous membranes very pale, showing every sign of considerable loss of blood. Pulse was 130, and very weak.

An examination of the abdomen revealed a hard mass extending almost up to the umbilicus on the right side, which could also be felt through the vagina. She had a typical history of extra-uterine pregnancy with rupture, and the feeling of this tumor seemed to be that of a clot of blood. Although she was extremely weak, her only chance seemed to be an immediate operation. After a thorough purging she was put upon the table and given chloroform. Just as soon as she was under the influence of the anaesthetic, we commenced the injection of saline

fluid into the arms and thighs. We had no apparatus for transfusion, so simply injected salines deep into the cellular tissue. At least a pint was used in the course of the operation. The abdomen was opened and found filled with blood, with many large clots, extending nearly up to the umbilicus. There was a half gallon of blood in the abdomen which had formed an enormous clot. These hemorrhages had evidently taken place slowly, which enabled her to endure them.

The cavity was rapidly cleaned of clots with the hand, and a rupture tube found on the right side, which was removed, and in the debris washed out we found a blighted ovum, which specimen I present for your inspection. The patient was extremely weak for some time after the operation, but has made a very satisfactory recovery. She did not seem to have sufficient blood to keep her alive. At several points where the saline solution was injected, although it was done very carefully with a clean syringe, there was some sloughing. There seemed to be no inflammation at the site if these injections, but sloughing has occurred simply from lack of vitality. The upper half of the abdominal wound united promptly, but the lower half for one inch has failed to heal. No inflammation is present, but the wound simply does not unite.

One rather singular feature in connection with the case is, that a week after the operation she said she could hear a peculiar noise or gurgling sound in her right arm. I made an investigation, and found about an ounce of the injected fluid had remained under the tissues without being absorbed since the operation a week before. This water had simply remained in the tissues without producing any inflammation or redness, and by pressing the lump a peculiar sound could be heard. It has since disappeared, and the patient has made a very satisfactory recovery.

**DISCUSSION.**

DR. A. M. CARTLEDGE: The case reported is simply another illustration of the fre-

\* Read before the Louisville Surgical Society, and contributed to the *AMERICAN THERAPIST*.

quency of ectopic gestation. I am satisfied that I have operated in former years upon two or three such cases and did not know what was the matter with them. I feel satisfied that where we have hemorrhage from the tube, where there is rupture with a great amount of blood extravasated,—that all such cases are ectopic gestation, whether we are able to find the fetal remains or not. In this case there was an enormous blood clot, yet the embryonic remains could be isolated. The case illustrates further what quick action can do; certainly it was a very desperate case in every particular, one of the cases that most practitioners would have treated by the expectant plan rather than resorting to abdominal section which unquestionably saved the patient's life. I have no doubt within a very few days, owing to the presence of the enormous clot of blood, this patient would have developed general and diffuse peritonitis, which would have resulted fatally, had she not died with a continuation of the extravasation of blood. The patient might have died from acute anemia. This case certainly demonstrates the wisdom of prompt surgical interference in cases of this character, and shows the results that may be obtained in apparently forlorn cases.

### THREE USEFUL REMEDIES.

By JOHN E. BACON, M.D.

The application of remedies in the cure or amelioration of disease is governed largely by the experience of physicians, the observers of the effect of different drugs upon the organism the subject of pathological process. It follows that different results have been reported from time to time by different observers as to the effect of any certain drug as applied for the relief of a certain condition. This discrepancy of opinion, which is often marked and which has often given rise to erroneous estimates of the ability of ex-

cellent men, may be due to mistaken diagnosis, to idiosyncrasy of an individual, or to methods and doses in which medicines are exhibited. Therefore, it appears to be the duty of every careful, observing physician to report from time to time the results, good or bad, of the employment of medicines which are not in general use, or if they are in general use, and seem to act more beneficially in certain doses or any particular way, together with an account of the cases with symptoms, and the manner in which the medicines are exhibited, for the information of the profession.

The fact that it has often been my good fortune to gain valuable information from the reported experience of others, and also the fact that I have heard excellent physicians, denounce as worthless, or even harmful, drugs which constitute an important part of my armentarium, must be advanced as my reasons for submitting the following reports.

*Potassium bichromate* has been for several years the most reliable remedy I have used in the treatment of capillary bronchitis in children. Under its influence I have seen the hot, dry skin become moist, the rapid pulse and respiration decline, the suffocative exhausting cough give way to loose cough with free and easy expectoration, and the temperature decline in two days from 105° to normal. It is likewise very valuable in acute colds or coryza of infants, easily restoring the patency of the occluded nostrils and subduing the fever and cough. The method of administration I follow is as follows:

Potass. bichromate (C. P.)....gr. i;  
Sacch. lactis ..... gr. ix;  
Atropiæ sulph.....gr. 1/200;  
Aquæ dest..... ʒ iv.

M. Sig.: Teaspoonful every half hour for six doses; then every hour.

This prescription may easily be prepared at the bedside by having the bichromate triturated with the milk sugar in a vial of the pocket-case, ten grains of the powder (representing one grain of the bichromate) dissolved in thirty-two tea-

spoonfuls (4 ozs.) of boiled water, and adding a tablet of atropine sulphate gr.  $\frac{1}{100}$ , or 10 drops of Tr. belladonna. In a majority of cases this will be all the medicine required, and has the advantage of being tasteless and is readily taken by children; besides it never interferes with the stomach or bowels, which is a great objection to the use of iodide and carbonate of ammonium, usually prescribed in these cases.

*Copper arsenite* is another drug which, judging from my own experience, deserves wider recognition. As a remedy for vomiting from any cause, except centric lesion, it is extremely valuable. For this purpose, I use a solution made by dissolving gr.  $\frac{1}{100}$  in four ounces of distilled or boiled water, giving a teaspoonful every fifteen minutes for two or three hours. As a remedy for irritative diarrhea of children it acts with a promptitude and certainty quite foreign to chalk mixture and opium preparations *ad libitum*.

For cases of gastro-intestinal irritation, especially apt to occur in teething children, a combination of arsenite of copper with arsenite of strychnine, according to the formula of Dr. Aulde, used in the same strength, exerts an extremely prompt beneficial effect, antiseptic and sedative. This remedy also is one that can be carried conveniently in the pocket-case and the solution made at the bedside—no small consideration to country physicians.

*Nuclein Solution*, a new product, has proved to be a very valuable stimulant to the cells of the glandular system, including of course the blood-making glands. I have used the drug in the form of tablets, containing one-third minim, with great satisfaction in a series of cases of which the following are typical.

A. T., female, age 28. Family history negative. Personal history: Has always been small and thin, pale and ill nourished; never was seriously ill, but never was well; has had nasal catarrh for ten years, and has been growing deaf for five years past. She came under my care for progressive deafness. Symptoms: Patient is

thin and pale, distinctly chlorotic; pulse 100, small and weak; anorexia and constipation; menses suppressed for nearly one year. Atrophic rhinitis with sclerotic changes in the pharynx and vault; hearing limited to  $\frac{1}{10}$ , watch-test for both ears; bone conduction fairly good.

Her treatment consisted of local applications not pertinent here, and nuclein solution tablets (one-third minim), one dissolved on the tongue three times a day. At the end of one month she had gained ten pounds in weight and had a good appetite, bowels regular, and some color in the face. Her hearing had increased to  $\frac{1}{10}$ , watch-test, and the atrophic process in the nose, throat, and tubes was apparently arrested. At the end of two months, total gain in weight is fifteen pounds and still improving as to general condition, and local lesions. The patient is encouraged and has been benefited for the first time, though she has been treated almost continuously for ten years. The case is still under observation.

M. S., female, age 16. Family history negative. Personal history: Was always small for age, with pale, waxy complexion. Has had all diseases of childhood, including diphtheria and scarlet fever, and never menstruated. During the summer of 1894 she had repeated attacks of epistaxis, so severe as to nearly exsanguinate her. Since then has been confined to house and partly to bed, being too weak to walk. Physical signs exclude phthisis, of which her parents were sorely afraid. She was pale, thin, and extremely weak. No appetite, constipation, and an irritative cough.

This patient had been treated with digestants and ferruginous tonics without benefit. She was placed at once on nuclein solution tablets, one three times a day, with marked benefit. At the end of two weeks Bland's pills were added to the treatment. In five weeks she menstruated and has been regular since. She is now gaining in weight and is distinctly improved in every way. The cough has ceased and strength returned, so that she

is able to take long walks and attend to her household duties.

Nuclein solution is a very useful drug, and merits more extended trial and further study.

Wellsboro, Pa.

### *TREATMENT OF CHRONIC CONSTIPATION.*

By D. H. BERGEY, M.D.

The highly interesting article of Dr. Faulds in the January number of *THE AMERICAN THERAPIST* leads me to report a case of chronic constipation. A. B. M., aged 55, a cigarmaker by occupation, came to me several years ago with a history of constipated bowels, dating from a severe attack of intestinal trouble, most probably cholera infantum, from which he suffered when a child.

At the time he came under treatment he had considerable difficulty to evacuate his bowels owing to an eversion of a portion of the rectum, brought about by the long duration and severity of his trouble. The entire colon was dilated to a considerable extent, as was easily demonstrable by physical examination. The retention of fecal matter was also manifested by the marked fecal odor emanating from his body; this was so pronounced at times as to render his presence loathsome to others, and was at all times evident to his own senses. His appetite was poor; his sleep very much disturbed; and nervous manifestations, such as giddiness and uncertain co-ordination on walking, unfitted him for work more than half the time. To this may be added the discomfort from flatulence, and the frequent escape of flatus through the stomach and mouth. Vomiting was not unusual.

Such was his condition when he presented himself. Active catharsis abated the symptoms for a short time, only to return with their full force. He was placed on a tablet containing ox-gall, 2 grains, strychnine sulphate,  $\frac{1}{100}$  grain, and pow-

dered ipecac,  $\frac{1}{4}$  grain, taken after meals. Also sodium salicylate, 5 grains, every three hours. For the removal of the intestinal obstruction he was instructed to use copious enemata of hot soapy water every evening. Under this line of treatment improvement was prompt and progressive. He was later instructed to practice the retention of a pint of warm water after he had secured a movement. This brought about an additional easy movement the next morning. The prolapse of the rectum and the nervous symptoms ameliorated from the beginning of the treatment, and after the first week he was able to work at his trade all the time without any more hindrance from his former troubles. The internal treatment was continued almost continuously for a year, when he was able to keep his disorder under control by resorting occasionally to the hot water enemata.

While I placed much confidence in the internal treatment, and believe it had a large share in restoring the activity of the gastro-intestinal apparatus, yet it is probable that the internal treatment would have been totally ineffectual by itself. The hot water enemata paved the way for the internal medication.

1245 S. 28th Street, Philadelphia.

**HOSPITAL APPOINTMENT.**—Dr. Charles P. Knapp has recently been appointed pathologist to the Wilkes-Barre, Pa., City Hospital. Wilkes-Barre is a city of 50,000 population, situated in a thickly settled portion of the state, there being now nearly two hundred thousand population in the city and immediate vicinity. The institution is finely equipped for the reception and treatment of patients, and contains twenty private rooms. It is said to have the finest operating room in the state. A training school for nurses is in operation in connection with the hospital; and there is also a dispensary and ambulance service. The officers are now fitting up a pathological laboratory for clinical and experimental investigation in the line of rational therapeutics.

# THE AMERICAN THERAPIST.

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CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - Editor.  
1411 WALNUT ST., PHILADELPHIA, PA.

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## Editorial.

### HOSPITAL RECORDS.

Hospital records are always of value, as indicating the character and severity of certain prevalent diseases; but, through a mistaken notion, they are sometimes brought forward to prove an increased or decreased mortality rate. For example: according to the recent report of Dr. WILLIAM M. WELCH, of the Municipal Hospital, Philadelphia, it appears that, through the presence of smallpox and diphtheria, the admissions during the past year have been greater than any year since 1881. In the case of smallpox, while there have been a larger number of cases reported to the Board of Health than for some years past, the actual number of cases has not been relatively so very large. The increased number of admissions arises from the fact that the authorities are exercising greater care in preventing the spread of this disease, by sending cases to the hospital; and, besides, many cases occur now where no objections are offered to the hospital treatment, the public having learned from sad experience that the hospital is the very best place for such patients. In respect to diphtheria, however, a different condition of affairs ob-

tains, since the manifestations of the disease is so variable. Perhaps the true condition of a patient is not realized by the medical attendant until several persons have been exposed, and in such instances, where the home facilities are sufficient, it is far better to allow the patient and all suspects to remain under the same roof, proper disinfection being practised and an efficient quarantine established. Nevertheless, physicians in attendance upon these cases are liable to carry the contagion unawares, or through carelessness, and, as a consequence, many cases develop in families where home protection is impossible, and these are the cases which find their way to the hospital.

It is probably true that the aggregate number of cases of diphtheria occurring in Philadelphia during the past year has been greater than for some time past, because it is a fact, already pointed out in these columns, that disinfection is inefficient, and that by the usual methods of quarantine no real security is afforded. The question then comes up, What is the cause for this increasing number of diphtheria cases in this city? Well, there are, or have been, several causes at work, among which should be mentioned the water supply, the extensive operations in re-paving the streets, the lack of proper sanitary measures in homes, not to mention atmospheric influences that are constantly present. In Continental hospitals we can readily account for the greater number of cases, owing to the fact that the public has been educated to appreciate the advantage of hospital treatment. There is probably still a second reason, namely, that in cases of diphtheria abroad, the home facilities are not so good as they are in this country. There is, however, another and a very important factor which should not be overlooked. We refer to the great advantages which have been offered abroad through the recent introduction of the anti-toxine treatment. No doubt, hundreds of cases of diph-

theria have been whisked off to the hospitals of Paris and Berlin when only a suspicion of the disease existed, in the hope that immunity might be secured by early inoculation, and it must be apparent, therefore, that the vast array of statistics compiled from hospital treatment on the Continent cannot be accepted as a true reflection of the existing state of affairs bearing upon anti-toxine inoculation.

### THE CAUSE OF DIPHTHERIA.

While perusing the foregoing article, the reader cannot fail to be impressed with the idea that it is calculated to throw some doubt upon the records of anti-toxine inoculations, as it will be inferred that numerous cases of suspected diphtheria might have been nothing more than pseudo-diphtheria or follicular tonsillitis, and that statistics built upon such an uncertain foundation would necessarily prove unreliable. Of course, the claim will be set up that in most of the cases treated in hospitals the presence of the Klebs-Löffler bacillus had been demonstrated; but in view of the most recent investigations upon the subject, the mere demonstration of the diphtheria bacillus is not sufficient to warrant a diagnosis of this disease. When it has been repeatedly shown that a bacillus, identical with the Klebs-Löffler bacillus, may exist in the throats of persons in perfect health, and that it is usually found in the throats of attendants upon such cases without in any manner affecting their physical condition, we may reasonably entertain grave doubts concerning the accuracy of the diagnosis in many instances.

Since it has been affirmed by the foremost bacteriologists that the diphtheria bacillus may occur under two forms, virulent and non-virulent, it would be necessary to establish an absolute diagnosis in every case by the subcutaneous injection of cultures from suspects. If no reaction occurred in the animal experi-

mented upon, then the bacilli were of the non-virulent type, and consequently not truly diphtheritic.

Before leaving this important subject, it should be remarked that possibly dame Nature may still possess some occult secret which has so far escaped the eagle eye of the bacteriologist, the clinician and the physiological chemist, and doubtless, when discovered, we shall be able to reconcile these conflicting views. For example: we read in the bible that the Almighty endowed the Devil with the capacity of changing his form, and that in the guise of a serpent he appeared to Eve in the garden, and beguiled her to eat of the fruit of the forbidden tree. It is just possible that Nature has endowed these diphtheria bacteria with capacity of changing their character to such an extent that, although they are non-virulent, to-day, to-morrow, they may be virulent, and we are now in a position to admit that, owing to the changes occurring in the nervous and physical system, metamorphoses could take place within a limited period sufficient to explain this apparent paradox. Moreover, this seems to be a reasonable, and at the same time an acceptable elucidation of the question, because we know from clinical observation that the peculiar character of diphtheria may change on being transmitted from one person to another. Mild cases not infrequently give rise to malignant attacks, and *vice versa*, and it has long been observed that cases occurring towards the end of an epidemic are usually of an extremely favorable nature.

In view of the facts here presented, we cannot resist the temptation to suggest that the questions relating to the cause of diphtheria demand further investigation. Indeed, it is not beyond the range of possibilities that valuable information might be obtained by a microscopical and chemical study of the blood, both before and after inoculation with the diphtheritic virus; but thus far, no attempt has been made to study the question beyond the

physiological and pathological conditions directly connected with the bacilli themselves. Let us interrogate the blood and the effect of inoculations upon the nervous system in order to determine what, if any, material changes take place in these tissues previous to the appearance of the full-fledged Klebs-Löffler bacillus.

### *ANTITOXINE IN THE BALANCE.*

At this writing the reports from abroad are to the effect that in several of the principal European cities a reactionary movement is on foot in relation to the virtues of antitoxine. Professor DRASCHE, of Vienna, having studied the effects of the new remedy in thirty cases of diphtheria, has just recounted his experience before a prominent medical gathering, giving reasons for his criticism and pointing out the unfavorable action of the remedy. His principal objection appears to be due to the untoward effects of the treatment upon the kidneys, an observation which was confirmed by other physicians, although he admits that the time for observation has yet been too limited to permit a final decision; but he was very particular to state that its application should be limited. In commenting upon the accumulated statistics in favor of antitoxine, which were offered as a proof of its successful application, Professor DRASCHE is reported to have said, that in diphtheria, bare figures were no evidence.

In reviewing all the evidence brought forward for and against the employment of antitoxine in the treatment of diphtheria, the editor believes that the position already taken is one fully warranted by all the facts and surrounding circumstances attending the manufacture and administration of the new remedy.\*

As a result of further study and investigation on the part of clinicians, there is even more evidence for the belief that the true physiological rôle of antitoxine ino-

culations is not yet properly understood—certainly not by the general practitioner, and probably not by those most enthusiastic in its advocacy.

The most noteworthy feature about the use of antitoxine is, that no one pretends to know anything definite or indefinite about its composition, and unlike other remedies which are in general use, no one has undertaken to present an analysis. Ten years ago, this oversight would have been of little moment; but to-day, with all our laboratory facilities, fully equipped for the most delicate tests known to physiological chemistry, there is not a single human being in either hemisphere who has the faintest conception of the constituent elements of a remedy which is now used in this country alone probably not less than a thousand times a day. It will not be out of place here to suggest that the medical profession ought to make an attempt to remove the mote from its own eye before prating about the gullibility of the public in swallowing unknown drugs !!!

In the article referred to above, it was assumed that the evidence presented was sufficient to show the utter fallacy of the claim that antitoxine inoculations were effective by reason of any chemical or physiological properties which they might possibly embody, and an attempt was there made to show that the curative properties depended upon the presence of nuclein in the blood-serum employed. At that time it was not deemed advisable or expedient to intimate that this blood-serum contained something besides the nuclein. Of course, any scientific man of ordinary intelligence would naturally arrive at the same result as the writer; but it is not always policy or politic to be overly clear and precise in your demonstrations. Now, however, the time is ripe for such an elaboration.

It must be apparent to those who have given this matter even the most cursory examination, that the blood-serum called antitoxine must contain some unknown

\*Editorial, AMERICAN THERAPIST, Sept., 1894.

product in addition to the nuclein or alexin, as previously pointed out. And since nuclein has been proven to be perfectly harmless, there is a strong probability that this additional substance is that which acts as an irritant. It cannot be denied that antitoxine does contain some peculiar irritant substance, and we should not be far out of the way were we to assign as the cause of offense the diphtheritic cultures themselves. They are given to the horse in rapidly increasing doses—that is, until the animal becomes tolerant of them; and as we have no idea that they are as rapidly driven out of the animal, or readily converted (transmuted?) into nutritive pabulum, there is warrant for assuming that this is an element of the so-called antitoxine, and further, that it is probably the source of irritation and untoward effects which have been reported from time to time.

There is still another topic which deserves consideration at this point, namely, the peculiar function of nuclein or alexin in arresting the progress of diphtheria and other affections; but this must be deferred in order to bring to the attention an item having a peculiar significance in this connection. It is a fact that the antitoxine inoculations are but another form of isopathy as taught by Dr. CONSTANTINE HERING, a celebrated homeopathic practitioner, whose death occurred in this city about twenty years ago. This man was referred to by Dr. DUDGEON, of London, also a prominent homeopath, as being responsible for introducing the “heresy” into their ranks. *Psorine*, the great isopathic remedy of Dr. HERING, was employed by him in all forms of disorder, although it was nothing more than a highly attenuated trituration of the scabs falling from sores on the body. HERING had an idea that itch was the cause of all disease, and on this principle, he gave it to all patients—and, what is more to the point, claimed that they got well on it. If HERING’s isopathy was crude and disgusting, with the source of supply limited

to the disease-products of the human body, can it be said truthfully that modern isopathy is more refined because the source of supply includes the horse, referred to in the bible as an unclean beast?

### RECENT MEDICAMENTS.

MARROL is a new English specialty, a dietetic preparation of marrow, malt and hops extracts. We note it here for sake of record merely.

CARNIFERRIN has just been introduced; it is a meat-iron-phosphate compound, of nutrient and hematinic properties; tasteless, readily absorbed, and mixes with acid and alkaline solutions without decomposition. Dose, 3 to 4 grains for children, and 8 grains for adults, daily.

AIROL ( $C_6H_5[OH]$ ,  $CO_2$ ,  $BiOH$ . I.) is the latest iodoform substitute, an oxy-iodogallate of bismuth; occurs as a grayish green, fine powder, odorless and tasteless, not affected by light. It is applied as dusting powder, in ointments, etc., in the usual manner.

MYRONIN is a new ointment base, prepared by purifying vegetable wax of *Copernicia cerifera* (Carnauba or Brazil wax) and doelgling (whale) oil, and mixing in proportions to make a homogeneous mass of desired consistency; the regular product contains about 12 per cent. of water, which can be increased or lowered. The advantages of this base are: that it will not easily become rancid, and that it is readily absorbed without causing irritation.

FERROPYRIN is a new antipyrine compound with ferric chloride; composition,  $F_2Cl_3(C_{11}H_{11}N_2O)$ ; occurs as fine powder, of orange red color; readily soluble in water. It is recommended in 7 grain doses in febrile conditions. We are prompted to add, that only one or two of the many antipyrine compounds which have been introduced have ever achieved much recognition; the most popular is the salicylate, known commercially as Salipyrin.



## Current Literature.

**TRICHLORACETIC ACID IN NOSE-BLEED.**—Prof. Cozzolino (*Journal de Medicine de Paris*) recommends in epistaxis the local application of a 3 per cent. solution of trichloroacetic acid. The end of a probe is well wrapped in cotton, dipped into the solution and applied to the mucous membrane of the septum, whence generally proceed severe nasal hemorrhages. To prevent a burning sensation a little 10 per cent. solution of cocaine is added. The hemorrhage will generally cease at once. It is superior to the traditional perchloride of iron in that it is aseptic and acts still better as a styptic.—*Ohio Dental Journal*.

**ALUMNOL.**—Alumnol, the astringent and antiseptic, is still largely used but with varied success. Although Caspar and Sandar are skeptical as to its use in gonorrhea, and even in chronic cases prefer silver nitrate, still others hold differently. Dr. William S. Gottheil, of New York City, has made a preliminary report on its use in skin diseases. He employed it in 16 cases of acute inflammations of the skin, and vesicular, impetiginous and diffuse eczema of the face, head, extremities and general surface; 9 cases of chronic inflammations of the skin and squamous, indurated and seborrheal eczematata; 9 cases of superficial and deep-seated syphilitic inflammation of the skin, and gummata of the skin and subcutaneous tissue; 9 cases of deep-seated or parenchymatous and traumatic and infectious inflammations of the skin; 8 cases of parasitic and contagious diseases of the skin; 7 cases of glandular and vascular diseases, and finally, 2 cases of gonorrhea. He concludes, "The number of cases of gonorrhea was not sufficient to draw any conclusions from, but I think the drug deserves trial in chronic cases. It will probably be found about as efficacious and reliable as the other remedies used, or as unreliable. The truth probably lies mid-

way between Chotzen's eulogies and Caspar's report of its uselessness."

Dr. J. A. Cantrell is satisfied as to its usefulness in erythema, intertrigo, acute vesicular eczema and other forms of eczema.

Drs. R. Heinz and A. Liebrecht still believe in its action in both superficial and deep cavities.

Dr. Albert Spengler, of Heidelberg, Germany, apparently continues to use it in preference to zinc chloride.

Professor Schwimmer, of Budapest, Hungary, reported at the recent medical Congress, held in Rome in April, that he had obtained excellent results. In acute cases, at times, irritation occurred, but in chronic none appeared. He found, however, that the treatment had to be kept up fully as long with this agent as with others.—*Squibb's Ephemeris*, Jan., 1895.

**TREATMENT OF INOPERABLE MALIGNANT TUMORS.**—Dr. W. B. Coley, New York, in a paper read before the recent meeting of the American Surgical Association, in Washington, D. C., reported twenty-five cases of sarcoma treated by inoculating the patient with the toxins of erysipelas and bacillus prodigiosus, with six cures. Nine markedly improved and eight slightly improved. Also, eight cancer cases, all but one of which showed improvement. The author's conclusions were as follows:

*First.*—The curative action of erysipelas upon malignant tumors is an established fact.

*Second.*—This action is much more powerful on sarcoma than carcinoma.

*Third.*—This action is chiefly due to the soluble toxins of the erysipelas streptococcus, which toxins may be isolated and used with safety and accuracy.

*Fourth.*—The action is greatly increased by the addition of the toxins of bacillus prodigiosus.

*Fifth.*—The toxins, to be of value, must come from very virulent cultures, and must be freshly prepared.

*Sixth.*—The results obtained from the use of these toxines, without danger, are so nearly, if not quite, equal to those obtained from an attack of erysipelas, that inoculation should rarely be resorted to. —*International Journal of Surgery.*

A NOTE ON THE USE OF PICROTOXIN IN GYNECOLOGY.—Frank W. Talley, M. D., Instructor in Gynecology, Philadelphia Polyclinic, contributes the following to a recent issue of the *Polyclinic*:

The frequent occurrence of severe nervous symptoms coexisting with uterine and ovarian diseases has been observed, no doubt, by all practitioners of medicine and certainly by the gynecic specialist. The richness of the sympathetic nerve supply to these organs easily explains its occurrence.

These symptoms are embarrassing to the practitioners and prostrating to the patient; they are found in young girls suffering with ovarian disease, but most frequently in middle-aged women who are approaching the menopause. At this time they increase in severity and continue for a period of from two to six years, with varying intensity.

The symptoms complained of are: flashes of heat, cold creeps, sweats, cold hands and feet, flatulence, constipation, palpitation of the heart, melancholia. The patients are easily confused, their memory is impaired, they have crying spells, avoid crowds and public places, are suspicious and brooding, flush when addressed, have a sense of impending calamity, and are generally wretched.

For the relief of these symptoms a variety of drugs have been advanced, such as strychnia, iron, arsenic, sumbul, asafetida, valerian, and bromide of potash. These, with rest treatment, attention to the bowels and to hygienic surroundings, often relieve the condition. There are cases, however, especially during the menopause, in which the relief from these drugs is only slight. For these cases I

have used in the last few months picrotoxin in 1/60 grain dose, repeated three times a day with the happiest results.

The use of the drug was suggested to me by my friend, Dr. E. M. Clark. The cases upon which it was used were selected from the service at the Polyclinic Hospital and also at the dispensary of the University of Pennsylvania. In many of them bromide of potassium had been used with negative results.

I have also used picrotoxin in the same dose in the various conditions accompanying uterine and ovarian disease in young girls. The results obtained have been uniformly good. I have observed no bad symptoms following the use of picrotoxin in full doses, and know of no contra-indication to its use.

The drug probably acts by lowering the reflex excitability of the spinal cord. It seems also to have a tonic influence.

In the treatment of these conditions the use of laxatives must not be overlooked.

CACTUS GRANDIFLORUS. — Mr. Gordon Sharp (*Practitioner*, September, 1894), after a careful study extending over two years, of the literature, pharmacology and therapeutics of *Cactus grandiflorus*, a claimant for favor with digitalis, concludes as follows: "The literature of *Cactus grandiflorus* is comparatively extensive but vague, too many properties being ascribed to the drug, and upon too slender evidence; there being no authoritative evidence of a pharmacological or carefully carried out therapeutical kind. The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as we can make out after extensive trials, we have been unable to obtain either of those bodies. The most important agents we find to be a series of resins. The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These contract the blood-vessels of a frog; but this is not of the nature of a digitalis contraction, but

depends, I believe, on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with digitalis in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart muscle at all. The therapeutics of the subject, I think, are clear enough. *Cactus grandiflorus* cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and at most all one can say is that it has some small diuretic action." The few reported instances in which it appears of any service were cases in which it was combined with some effective drug like nux vomica, and consequently not of any test value.—*Boston Med. and Surg. Journal*.

**ANTITOXINE AND ITS PREPARATION.**—The following succinct information relating to the preparation is extracted from the *Pharmaceutical Journal and Transactions*, Vol. xxv, p. 291:

Flasks containing nutrient broth are inoculated with the bacilli, and maintained for several weeks at a temperature of 37° C. At the expiration of this period of incubation the contents of the flasks are filtered through a Chamberland filter, which arrests the bacilli. The clear filtrate thus freed from organisms has a strong alkaline reaction. It is a virulent poison and speedily causes death when injected into animals in comparatively small quantities; from this property it is called diphtheritic toxine.

The toxine is injected into animals in minute, but increasing quantities at intervals extending over several months, the initial doses being so small as to cause only transient symptoms, and it is found that animals so treated are finally enabled to withstand the injection of such doses as would prove rapidly fatal to an uninoculated animal of the same weight. When the animal has been thus rendered immune, its milk and blood-serum are

stated to possess the remarkable property of protecting other animals from inoculation by the disease. In order to obtain the serum, blood is withdrawn from the body and allowed to stand. It clots in a short time, the clot being composed of filaments of fibrin enclosing the blood-corpuscles, and by the contraction of the clot, the blood is separated into clot and serum, the latter being a pale, clear fluid, comprising practically the fluid part of the blood, *minus* corpuscles and fibrin.

The serum obtained in this way, from the blood of animals rendered immune, as previously described, constitutes the antitoxine used in the treatment of the disease, the name being derived from its antagonistic action to the toxine produced by the bacillus.

It may be well to state here that nothing is known at present as to the nature of the substance to which the action of toxine and antitoxine is due. From experiments on animals the following results were obtained: (1) By mixing antitoxine in certain proportions with the toxine in a test-tube, the latter is rendered harmless; (2) by first injecting the antitoxine, followed by the toxine, the same effect is produced; and (3) the toxine may be injected first, followed by the antitoxine. In the latter case a relatively larger quantity of the antitoxine is required, and the interval between the injections must be brief.

**SECONDARY EFFECTS OF THE ANTITOXINE OF DIPHTHERIA.**—Lubinski (*Deutsche med. Wochenschrift*, 1894, No. 45, p. 857) has reported a case of nasal and pharyngeal diphtheria, in a girl eight years old, in which treatment with the antitoxine was followed by the development of erythema exsudativum multiforme. Ten ccm. of Behring's serum (representing 600 immunity units) were injected on the third day of the attack, and again twice on the fourth day. The local and general conditions underwent decided improvement, although sensitive areas of redness formed

at the sites of injection. On the thirteenth day both ankle-joints became reddened and swollen, and in the course of the night a small, measly-like eruption appeared, extending in the course of the following day upon the extensor surfaces of both lower extremities, and subsequently appearing upon the extensor surfaces of the upper extremities. There were also pains in the knee-joints, elbow-joints and ankle-joints. For several days matters continued thus, the exanthem extending and the pains persisting, but finally both began to subside, and at the end of a week the child was quite well.—*Med. News*.

Similar observations have been made on the use of each of the competing antitoxic serums; but these after-symptoms are not of long duration, and do not leave any permanent impress. Experienced authorities accord them no more importance than the similar fleeting after-effects of drugs, now a matter of therapeutic record.

**REPORT OF CASES TREATED WITH NUCLEIN.**  
—Edwin F. Wilson, A. M., M. D., Professor of Clinical Medicine, Ohio Medical University, Columbus, Ohio, publishes the following interesting clinical report in the *Columbus Medical Journal*, Jan 22, 1895:

In reporting the following cases treated by the nuclein solution, I have thought it best to first state what nuclein is, as I have found a good many of my friends in the dark concerning this form of medication.

Nuclein is a phosphorized proteid, the phosphorus being in the form of nucleinic acid, combined with a highly complex basic substance.

Nucleins have been studied at different times and by different observers ever since Braconnot, in 1831, first called attention to them. Within the past year, Vaughan, of Ann Arbor, and Aulde, of Philadelphia, have made extensive studies in regard to the physiological properties and therapeutic range of the nucleins.

The sources from which they are obtained are yeast-cells, yolk of egg, the spleen, the blood, the testicle, the bone-marrow, the brain, the thyroid and thymus glands.

In the *New York Medical Journal* of September 29th, 1894, Aulde says:

The vitality of the animal organism depends upon the integrity and normal functional activity of the cells. Derangements of the various organs is always the result of functional or organic perturbation of cell life or cell activity, and upon this well-known fact rests the modern doctrine of cellular therapy. All, or nearly all, remedial agents are exhibited with a view to modify, to increase or diminish cellular activity, so that cellular therapy is but a new name to designate a method which has universally prevailed since the dawn of medical history. The scientific search-light has but revealed its existence, while the bacterial torch enables us to fix its position.

Again, he says, it is well known that nuclein is the name applied to a product more or less constantly manufactured by certain leucocytes (the multinuclear white blood corpuscle), and being distributed throughout the tissues by means of the lymph and blood-vascular systems, a normal functional activity is maintained in the protoplasm. The power to resist or withstand disease is now attributed to "defensive proteids," and recent investigations clearly point to nuclein as one of the most effective proteids, if not the principle one, embraced in the modern physiological complex. "Physiological investigation shows that nuclein possesses distinct antiseptic properties, and clinical observation has repeatedly demonstrated its therapeutic virtues in a long list of hitherto vexatious and intractable diseases."

Three months ago I obtained a quantity of the nuclein solution manufactured according to Aulde's formula, and have been using it in a number of difficult diseases, with the following results:

Mrs. M——, aged twenty-four, had had a severe and prolonged attack of malaria.

I had given quinine in large doses, reaching at least sixty grains in twenty-four hours, with the result of only slightly modifying the disease. Arsenic and Warburg's tincture were given with the same result. After eight weeks' time a microscopical examination of the blood found it charged with the plasmodium. I began the administration of solution of nuclein, one-third of a minum at a dose every two hours, and in two days' time there was a marked improvement, and in one week she was convalescent. The improvement here was clearly due to the nuclein, as I used no other remedies at all while giving it.

Case 2—Miss B—, aged seventy-two—malaria. The plasmodium was also found in this case. Here there was a personal idiosyncrasy in regard to quinine, so I did not use it at all. After using Fowler's solution in full doses for one week without any benefit, began the use of nuclein. There was a marked improvement from the start, and in about ten days the patient was convalescent.

Case 3—Hugh R—, nine years old—diphtheria. The case was a well-marked one, with membrane covering the tonsils and uvula. Stopped all other medicine. and used one-third of a minum of nuclein solution every two hours for twelve hours; then every four hours. I also used a gargle of hydrogen peroxide, to which was added an equal amount of water and five grains of sodium bicarbonate. This gargle was used every four hours. Within the first twelve hours the membrane began to loosen, and at the end of thirty-six hours the throat was clean and the child convalescent. I have watched this case to see if I should have any of the sequelæ; but thus far, after two months, I have had none.

I have also used this solution of nuclein in fourteen cases of follicular pharyngitis and tonsillitis, with favorable results in each case. Of these I shall only detail one case, as the others would be a mere repetition :

Miss F. B—, aged twenty-two, actress by profession. Had had sore throat for several days, when I was called in; temperature 102, pulse 120; complained of some headache and backache, pains in limbs, and was unable to leave her bed. On examining the throat, found an intense congestion of the pharynx, with several white spots on the tonsils. There was considerable odor. She had been using gargles and potass. chlorate, but without any relief. I gave the solution of nuclein, one-third minum, every two hours for twelve hours, then every three hours. The next morning, viz., in twenty-four hours, when I returned, I found her sitting up in bed, eating her breakfast, and only waiting until I came to know if she might get up and go to have her "picture" taken. She went on in her part that night.

I have tried the remedy in several other diseases, but as yet have nothing additional to report.

PREVENTION OF IODISM.—Dr. H. N. Spencer (*Int. Med. Mag.*, Dec., 1893) recommends the following mode, due to Professor Hardaway, of prescribing iodide of potassium; the tendency to coryza is counteracted by the nux vomica and ammonia citrate, while the tonics prevent depression :

R. Iodide of potassium..... ʒ ss.  
Citrate of iron.  
Ammonium..... ʒʒ ʒ j.  
Tinct. of nux vomica..... ʒ ij.  
Water..... ʒ jss.  
Comp. tinct. of cinchona, to make ʒ iv.

Dose: One teaspoonful in half a glass of water after meals. The quantity of iodide may be increased to any desired extent by adding the necessary amount of a saturated solution.—*Med. Record.*

LYSOL.—Anschutz and Pohl (quoted by *Deut. Med. Zeit.*, June, 1894), in inaugural dissertations upon the antiseptic value of this drug, came practically to the same conclusions in regard to it. These are that it is chemically constant, that it makes a clear solution in water, that it kills micro-or-

ganisms in dilute solution, that it does not irritate the hands of the surgeon, that it is only very slightly toxic, and that it is cheap.—*Therap. Gazette.*

**LACTOPHENIN.**—Strauss (*Therap. Monatshefte*, September, 1894) reports his experiments with lactophenin as an antipyretic.

In seven cases of typhoid fever in which he administered the drug, while the sedative effects were not so constantly observed as in von Jaksch's cases, it never gave rise to unpleasant symptoms. The dose was seven to fifteen grains, and never exceeded forty-five grains a day. The antipyretic action of the drug was pronounced. The writer regards lactophenin as a good substitute for perfect hydro-therapy.

In four out of five cases of facial erysipelas it lowered the temperature; in the remaining case other antipyretics also failed.

In two cases of diphtheria (one septic) the temperature fell nearly  $2^{\circ}$  C. within five hours.

In three cases of pneumonia its antipyretic action was noticeable.

In one of two cases of scarlet fever it failed to act.

In five cases of phthisis it lowered the temperature and caused profuse diaphoresis, but produced no unpleasant effects.

In one or two instances its use was accompanied with a diffuse rash.—*Univ. Med. Magazine.*

#### THE SERUM THERAPEUTICS OF PNEUMONIA.

—At this time when the attention of the medical world is directed to the serum therapeutics of diphtheria and tetanus, a short review of the same method of treatment as applied to pneumonia, given in *L'Union Médicale* of December 8, 1894, may prove of interest. Numerous experiments have been made on animals, and several attempts have been made to treat patients in the same manner. Drs. F. and G. Klemperer have treated twelve cases of pneumonia with the serum of rabbits rendered artificially immune.

Each dose consisted of from five to ten ccm. injected under the skin of the buttock. Eliminating five of the cases in which crisis resulted as in the ordinary course of the disease, in the remaining seven each time the serum was administered there was a diminution in the height of the temperature and in the frequency of the pulse and respiration, and the patients made a good recovery. They have also injected eight patients with cultures of the pneumococcus which had been heated to  $60^{\circ}$  C., and so deprived of toxicity. The results were very satisfactory, the temperature falling soon after the injections. They also inoculated patients with the serum of other patients suffering from pneumonia, obtained immediately after the crisis. After the inoculations the temperature became lower, and frequently defervescence at once followed. Foa and Carbone reported a case of pneumonia which was arrested on the fourth day after injections of the serum of a vaccinated rabbit. Foa and Scolia injected ten patients suffering from pneumonia with from five to seven c.c. of the serum of rabbits which had been rendered immune, the injections being given under the skin of the back. In some of the cases as many as three injections were given; in these (four in number) the crisis appeared to be hastened. Jansen also records cases in which this treatment was adopted with success. Lava has treated ten cases of pneumonia with injections of the blood-serum products obtained from the viscera of animals suffering from pneumonia. The injections produced no immediate or ulterior local reaction. There was also no immediate influence on the temperature, but the thermometric curve gradually became lower; the frequency of the pulse and respiration was diminished. Convalescence was rapid and no complications followed. Taken as a whole, the above series of experiments are satisfactory, and the serum therapeutics of pneumonia deserve further trial and investigation.—*Lancet.*

## Book Notices.

### ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES :

A yearly report of the progress of the general sanitary sciences throughout the world. Edited by CHARLES E. SAJOUS, M. D., and Seventy Associate Editors. Illustrated with chromo-lithographs, engravings and maps. Cloth, 8 vo., in five volumes. Philadelphia: The F. A. Davis Co., 1894. (Price, \$15.00.)

The publication of the "Annual" must be regarded as an inspiration on the part of both editor and publisher, since it covers so well the entire field of medical science throughout the world. Not the least valuable feature is the particularly attractive index, enabling the reader to find any topic with the least expenditure of time. As we have nothing but compliments for the work, an elaborate review would appear to be fulsome praise of its many excellencies. The various editions have been before the profession so long that their value is well known, and each successive year numerous improvements have been added. We congratulate the editor upon the marked success which he has achieved in bringing to the attention of the profession so much of direct and lasting benefit to medical science.

### THERAPEUTICS : Its Principles and Practice.

By HORATIO C. WOOD, M. D., L. L. D., Professor of Materia Medica and Therapeutics, etc., University of Pennsylvania. Ninth edition. Cloth, 8 vo., pp. 1007. Philadelphia: J. B. Lippincott Co., 1894. (Price, \$6.00.)

When a work has reached a ninth edition there is apparently little left for the critic to say, since it shows a marked popularity, or, possibly, it may be an indication of the material changes taking place on that particular subject. In this instance both conditions are present. The rapid changes in the domain of therapeutics make it imperative that revisions be made at frequent intervals, and the more popular a work on this subject the more frequent are revisions called for.

It is now twenty years since the first edition appeared, and in that time there have been several important changes, or upheavals, although being of an ephemeral nature, they have, either fortunately or unfortunately, not found a place in these pages. The book as it now stands may be accepted as a representative of modern physiological medicine, for which its author has so long been a staunch advocate; but we are now approaching a new era in therapeutics, and the probabilities are that another edition will be demanded in the near future.

In addition to his reputation as a physiological therapist, our author is perhaps better known for his persistency in advocating the use of digitalis in heart disease, and the administration of turpentine in typhoid fever; and while admitting that these remedies have a place in the treatment of the diseases mentioned, the writer is of the opinion that the recommendations have been accepted too literally by his students and followers. Whether or not harm has resulted from these teachings, is still an open question, as in their place other and more dangerous drugs might have been substituted.

Wood's therapeutics has always been a favorite with writers and teachers, for the reason that it contains many references to authorities, which renders it exceedingly valuable, since, in addition to the opinions of the author upon the various topics, the consultant has also the views in a condensed form of many authors. Of course, it would be impossible for an author to include in review all that has been advanced upon so many different remedies, or even an epitome, but the writer is frank to say that this compilation has been remarkably successful. Owing to the great changes which are now taking place in therapeutics, we shall look forward with renewed interest to the appearance of the next edition.

Like all the work of the publishers, this is an excellent specimen of book-making. The type is large enough to

make reading agreeable, the paper is good, and the binding is substantial; and although a hundred pages have been added the price remains unchanged.

**THE MEDICAL, PHARMACEUTICAL AND DENTAL REGISTER-DIRECTORY AND INTELLIGENCER:** With special medical, pharmaceutical and dental departments, containing detailed information of colleges, hospitals, asylums, medical societies, etc., for Pennsylvania, New York, New Jersey, Maryland, Delaware, and the District of Columbia. Third edition. Cloth, 8 vo., pp. 800. Philadelphia: George Keil, 1895. (Price, \$2.50.)

A cursory examination of this recent publication shows at once its adaptability to the wants of the physician, and a more careful examination furnishes additional evidence of the obligations under which the doctor is placed by this vast accumulation of isolated facts. In not a single instance will the consultant fail to find the information wanted in regard to asylums, hospitals, medical societies, medical laws, and medical and charitable institutions of various kinds by reference to its pages. It is especially valuable in respect to the physicians located in the principal cities, where the names of the practitioners are arranged alphabetically by streets in addition to the regular insertion in the body of the work. There ought to be a demand for such a volume, because it appeals to the medical man, the dentist, and the druggist, owing to the fact that it supplies recent, correct and valuable information.

### ITEMS OF INTEREST.

THE F. A. DAVIS Co., 1914 Cherry Street, Philadelphia, will issue early in February, a companion book to Dr. R. von Krafft-Ebing's famous treatise, "Psychopathia Sexualis," entitled "Suggestive Therapeutics in Psychopathia Sexualis," being a translation of the original by Dr. A. Schrenck-Notzing, of Munich, collaborator with Krafft-Ebing. This book will contain about 325 pages, and sold by subscription only, at \$2.50 per volume, in cloth. It will be of the greatest importance as an authoritative work on suggestion as a therapeutic agent in the hands of the intelligent practitioner.

THE FUNK & WAGNALLS Co., Astor Place, New York, have issued the Second Volume of the Standard Dictionary, completing the work, which can now be procured in a single volume or double set. We will give this second volume an early critical notice, to complete the description commenced in an article on Vol. I in our Feb. '94 issue. Meanwhile our readers will do well to write to the publishers for the Prospectus, which is a valuable pamphlet in itself.

E. B. TREAT, 4 Cooper Union, New York, announces the early publication of "The International Medical Annual, 1895," now in its thirteenth year. The book will have all its usual characteristics, with the same staff of thirty-nine distinguished American and European authorities; it will contain about 600 pages, illustrated, and sell at the regular price, \$2.75. Prospectus can be obtained from the publisher.

TWO MISSOURI medical journals have adopted the plan of inserting art engravings in each issue, and as the subjects selected are invariably "studies in the nude," the presumption is that this innovation is designed to draw subscribers more effectually than excellence of text or liberality in premiums. If it should transpire that this feature does "draw," illustrated medical journals may grow more numerous and soon extend their circulation outside their legitimate field.

MESS. FREDERICK STEARNS & Co., of Detroit, Mich., have sent us a neat Diary for 1895, just right for the vest pocket, and very convenient and useful; also a handsomely printed hanging calendar, with a decorative frontis piece in colors, which adorns the wall above our desk. We appreciate both so much that we advise our readers to write to this enterprising firm for duplicates, and thus extend the satisfaction.

WE HAVE learned by chance that the New Orleans *Medical and Surgical Journal* reprinted in its issue for September, 1894, Dr. E. B. SANGREE's contribution to our July, 1894, number: "A Case of Malaria—Simple Technique for Blood Examination." But instead of giving due credit for this excellent article, Dr. McShane, the editor, ascribes it to "E. B. Sanger, M.D.," and credits the publication to the Hot Springs *Medical Journal*. We prefer to believe that the double error was unintentional; and we hope that when this notice comes to hand, Dr. McShane will make prompt amends in the very next issue of his journal.

The contents of the AMERICAN THERAPIST, by the way, are copyrighted, which gives us legal title to all articles we publish; but we do not object to reprints provided full credit is given.



## Miscellany.

**DEATH FROM DRINKING RED INK.**—A new form of intemperance has been discovered in the habit of a house of refuge inmate of Rondout, N. Y.; the woman had acquired a craving for sucking red ink, and procuring a full bottle recently, she drank the contents and died very promptly from aniline poisoning. It is a curious fact that violet and red inks have an agreeable taste, and that school children frequently have the habit of sucking these inks from their pens. It may be well to call attention generally to the danger that lurks in this habit.

**DUTY ON IMPORTED SERUM.**—An effort was made recently in Congress to pass a special law to admit diphtheria antitoxin serum free of duty. Why? Because the press for a little while made a passing sensation of the matter, and politicians make capital of such opportunities. The enthusiasm is dying out, and the agents of serum therapy will soon be staples, requiring no more special discrimination than do other medicinal agents. It is not known generally, by the way, that bovine vaccine is imported in considerable quantities from France, Germany and England, and that it pays no duty—simply because unprovided for in the Tariff Acts, and because the importers have shrewdly interpreted its status as coming under a free clause.

**ACETYLENE**, the most powerful illuminant of the hydro-carbons (N. Y. *Sun*), can now be produced on a commercial scale, says Prof. Lewes in a paper read before the Society of Arts. It is a colorless gas with an intensely penetrating smell resembling garlic, so that the smallest leakage would be quickly detected. Five cubic feet of the gas will give a light equal to 240 candles for an hour. It is made by mixing forty parts by weight of finely ground chalk or lime with twenty-four parts by weight of any form of powdered carbon in an electric furnace and adding water; the product is lime and chalcid carbide, a pound of which will yield 5.3 cubic feet of acetylene. The carbide can be made for \$20 a ton; the gas would cost about \$1.60 a thousand feet, but its illuminating power would make its cost equal to coal gas at 12 cents a thousand.

**TRANSPORTATION OF GERMS.**—Some trouble has recently been caused in western districts by the objections of postal and express employees to handling packages containing tubes with diphtheria cultures, and some ruling on the mode of packing such articles—or possibly their exclusion—may be looked for. Yet it is an easy matter to so encase the vials or containers of germs, cultures, etc., that absolutely no trouble can ensue.

The same question was recently referred for a decision to the Collector of the Port of New York, against importations of bacteria from Europe. No rules stringent enough to preclude evasions can be formed; but even though this were possible, it would not impede scientific work, because there is no dearth of every possible germ in this country, and our biological laboratories here can propagate and produce all that may be wanted.

**ACONITE POISONING.**—Dr. C. W. Ensign, of Rotterdam Junction, N. Y., recently took a teaspoonful of tincture aconite root by mistake. Having no antidotes at hand, he drove to Schenectady, seven miles away, and his life was saved by Dr. Geo. E. McDonald, who dosed him with whiskey, opium, strychnine and nitro-glycerin. This was truly a mad race for life, and Dr. Ensign is a lucky man to have survived the occasion.

**BOLETUS LARICIS.**—Dr. Wm. S. Gibson, of Danville, Indiana, contributes the following brief item to the *Eclectic Medical Journal* for November, 1864:

"I wish to call the attention of the readers to the action of a remedy that is very little spoken of at the present time, namely, the *boletus laricis*. It is in diseases of a malarial origin that I wish to recommend it. The fevers in this section are of a remittent type, and are particularly aggravating, lingering along until the doctor's patience is almost gone.

"By accident my attention was called to *boletus*. I used it, and both my patients and myself are now happy. For the benefit of any one wishing to try it, I will give the symptoms of a typical case for *boletus*. Feeling of dulness and languor for some time past; poor appetite, bitter taste in the mouth, tongue coated yellow, more or less fever, restless, headache, bowels costive; perspires freely at night; feels chilly part of the time, at other times hot.

"These symptoms will vary, but are more or less common to all cases, and *boletus* is the *principal* remedy. I use the specific medicine, and give from two to four drops every two hours."

**PERIOD OF INFECTION.**—The Pennsylvania State Board of Health has adopted the following regulations in the diseases mentioned below:

*Smallpox.*—Six weeks from the commencement of the disease, if every scab has fallen off.

*Chicken Pox.*—Three weeks from the commencement of the disease, if every scab has fallen off.

*Scarlet Fever.*—Six weeks from the commencement of the disease, if the peeling has ceased, and there is no sore nose.

*Diphtheria.*—Six weeks from the commencement of the disease, if sore throat and other signs of the disease have disappeared.

*Measles.*—Three weeks from the commencement of the disease, if all swelling has subsided.

*Typhus.*—Four weeks from the commencement of the disease, if strength is re-established.

*Typhoid.*—Six weeks from the commencement of the disease, if strength is re-established.

*Whooping Cough.*—Six weeks from the commencement of the disease, if all cough has ceased.

Under judicious treatment the periods of infectiousness may be considerably shortened.

*Length of Quarantine.*—Teachers, or children, who have been exposed to infection from any of the following diseases may safely be readmitted to the school, if they remain in good health (and have taken proper means for disinfection), after the following periods of quarantine:

*Diphtheria*, twelve days; *scarlet fever*, fourteen days; *smallpox*, eighteen days; *measles*, eighteen days; *chicken-pox*, eighteen days; *mumps*, twenty-four days; *whooping cough*, twenty-one days. Adults may be readmitted immediately, if they disinfect their clothes and persons.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### *A CLINICAL STUDY OF THREE CASES OF SPONTANEOUS HEMOPHILIA IN BROTHERS. \**

By JUDSON DALAND, M.D.,

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and W. DUFFIELD ROBINSON, M.D.

The occurrence of three cases of hemophilia in one generation, with the tendency so marked that in two of the brothers there was a fatal termination, justifies the addition of this report to the literature on the subject.

CASE I.—Boy, aged thirteen years, living in Pennsylvania, at an elevation of 1800 feet. He was born at full term, and there was nothing unusual or remarkable during pregnancy or delivery, nor was there unusual bleeding. For eight months he was healthy and vigorous, and the skin was exceedingly clear, transparent, and pale. At that time he was taken with cholera infantum, and was ill three months. His recovery was coincident with the first frost that occurred that year, to which climatic condition his physician ascribed his recovery.

As his mother was unable to supply nourishment he was fed by the bottle. During the last two weeks of his illness there was noticed a profuse petechial eruption over the abdomen, the back, and the legs, and, to a less extent, over the arms. The eruption was described as rounded, non-elevated spots of the size of pin-head, black in color, uninfluenced by

pressure, evidently purpuric in character. There was no hemorrhage from any of the mucous membranes.

After this illness he remained well until about the age of five years, when he suffered from an attack of arthritis, affecting especially the elbows, knees, and wrists, and this was accompanied by fever and acid sweats. The joints were swollen, red, and painful. Relief was apparently obtained by the use of moist applications and the internal administration of salicylic acid and salicylate of sodium. From the fifth year up to the present, the thirteenth year, he has averaged one attack of arthritis every two months, and the peculiarity of these attacks, which usually followed exposure to cold or wet, was that the symptoms appeared forty-eight hours after the exposure. Recently the attacks have been less frequent and less severe. Soon after the fifth year the arthritis was so severe that considerable ankylosis ensued, necessitating the use of crutches until the ninth year, when relief was obtained from Swedish movements and massage. At the age of eight he had an attack of measles, whooping-cough, and scarlatina, from which he recovered without any complications or sequelæ. Since the age of five he had, approximately, fifty attacks of hemorrhages from various mucous membranes, but there was no recurrence of purpura. His father has observed that prior to the hemorrhages there would be grinding of the teeth or the face would become flushed, and in consequence he was frequently able to foretell an attack. Most of the hemorrhages were nasal, but on two occasions hematuria followed trauma of the renal region, and on one occasion hematemesis, from the

\* Read before the Philadelphia County Medical Society, January 9, 1895.

same cause, applied to the abdomen. Later he accidentally bit his tongue, which was followed by oozing, and then free hemorrhage, which continued for seven days. To control the nasal hemorrhage many remedies were employed, but relief was only obtained when ice was applied to the nape of the neck and to the bridge of the nose, *after* large quantities of blood had been lost, and when the physician in attendance thought death was imminent. For the injury to the tongue Monsel's solution was first used, which caused a cessation of the bleeding for a short time; but soon the coagulum was loosened by the oozing of blood and saliva, so that the hemorrhage was more violent than at the first, owing to the destruction of the tissue produced by the remedy.

Effort to check the hemorrhage from the use of intense cold produced by an ether spray proved valueless, as the spray could not be continued for a sufficient length of time, owing to the danger of ether narcosis and the repeated attacks of vomiting excited by the anesthetic.

Compression by means of forceps was attempted, but owing to the site of the injury, which was on the side of the tongue, about two inches from the tip, it was extremely difficult to properly apply the forceps for any length of time without exciting gagging and vomiting.

Ice was applied for five minutes, until the wound was partially frozen; then it was removed for a similar time, and subsequently reapplied. This was continued for twelve hours, after which the hemorrhage ceased. At that time he showed all the evidence of extreme anemia and caused his physician to think that death was imminent. Fluid extract of ergot was given in thirty-drop doses every three hours.

After each of the hemorrhagic attacks there was nausea and vomiting. When the finger was cut it bled continuously for hours, and was only relieved when Monsel's powder was applied. His father distinctly recalls a number of occasions

when this boy received a slight blow on some part of the body, so slight as not to produce even a bruise in a normal individual, which was followed by great pain, swelling, fever, and discoloration of the skin, showing that a considerable extravasation of blood had occurred. The greatest swelling was observed forty-eight hours after the reception of an injury, at which time the pain disappeared. The slow development of this swelling and discoloration of the skin would seem to prove that the more deeply-seated blood-vessels were ruptured, from which oozing took place. The slight traumatism was able to produce this result owing to the extreme vulnerability of the walls of the blood-vessels.

The patient has been always intensely nervous and sensitive, and frequently, after suffering from an attack of so-called articular rheumatism, he complained bitterly of pain in the joints from the vibration produced by any one walking about the room, even though his parents were unable to detect any movement of the bed which he occupied.

A week ago, while visiting Philadelphia to receive massage for partially ankylosed joints, he was observed to be extremely nervous, with choreiform twitching of the muscles of the face. That night there was grinding of the teeth, and the left edge of the tongue was bitten about half an inch from the tip, produced during sleep by the grinding of the teeth or from a slight convulsion. The following day there was a slight oozing, which continued for seventy-two hours, and increased until he lost about one ounce of blood per hour.

Many local remedies were tried, among which may be mentioned the use of powdered alum, antipyrine, Monsel's solution, and ice, but all proved valueless. Large doses of the compound syrup of the iodobromate of calcium were administered, and also ergot, oil of erigeron, and gallic acid; but these remedies were inefficient. On the sixth day of the hemorrhage I was given an opportunity of studying the case

with his attending physician, Dr. W. Duffield Robinson. I found the patient to be well developed, his skin and mucous membranes were pale, the pulse frequent, feeble and regular. The heart was slightly dislocated toward the right, the apex beat could be felt in the sixth interspace, but occupied a somewhat larger area than normal; the first sound was weak and the second sound sharp and accentuated. No murmur at the apex was audible, although a systemic murmur had been detected by Dr. Robinson at a previous examination. Over the aortic cartilage a sharp second sound was heard, and the pulmonic second was also sharp. Despite the high grade of anemia present no hemic or other murmur was audible. The examination of the lungs and abdominal viscera was negative. The skin was carefully examined, but only one purpuric spot was detected, on the inner surface of the left knee-joint, occupying an area having a diameter of three-fourths of an inch. It was supposed that this was due to a slight injury, as no other subcutaneous effusion of blood occurred. The right leg was slightly shorter than the other, and the left knee-joint was considerably enlarged. The muscles of the legs were moderately atrophied. The physiognomy showed that the patient was intellectual, bright, precocious, and the skull was capacious.

As several acts of vomiting had occurred, and nausea and intense thirst were complained of, the administration of food and remedies by the mouth was suspended, and a nutritive enemata given, to which fluid extract of ergot was added. To secure relief from nervous and muscular excitement, and to insure quiet, large doses of paregoric were given per rectum, with 15 grains of trional to secure sleep. On the seventh day, from 6 A.M. till noon, the father, who had observed him continuously, reported that the amount of blood lost was trifling and that very little had been swallowed. During this time ice had been applied every alternate five minutes. His condition showed that a

considerable quantity of blood had been lost during the previous twenty-four hours. It was observed that the pulse at the wrist numbered 70, while the heart-beats were 130 per minute.

Physical examination showed that the arterial system was partially empty and the veins collapsed. It was evident that the peripheral circulation was imperfect, as not more than half of the systoles of the heart were able to produce a pulse at the wrist. This condition of the peripheral circulation, the increase in the amount of fibrin that occurs after large hemorrhage, together with the muscular and mental quiet produced by opium, were counted upon to favor the formation of a coagulum, thus checking the hemorrhage. A minimum quantity of water was allowed, despite severe thirst, so as to prevent refilling of the almost emptied vessels with the concurrent increase of blood pressure and danger of expelling a slow-forming clot. An examination of the blood showed that it was rather lighter in color than normal, liquid, and, notwithstanding the large quantities lost, there was but little tendency to the formation of clots. This want of coagulability was and always has been a marked characteristic of each of these hemorrhages.

Microscopic examination of the blood showed an enormous number of very small microcytes, many of which were mere points. There were a few macrocytes and a moderate increase in the number of leucocytes. There were no parasites nor distorted red blood-cells, and crenation and rouleauxing were normal. The blood for this examination, which was obtained at the end of a protracted bleeding spell extending over a week, showed a decidedly greater tendency to clot than on any former occasion.

The Thoma-Zeiss hemocytometer showed 3,775,000 or 75.5 per cent., and Fleishl's hemometer showed 62 per cent. of hemoglobin.

The next day an examination showed well-marked evidence of quantitative and

qualitative anemia, no hemic murmurs audible, although especially searched for; the blood from the prick of a finger showed a normal tendency to clot, and the hemorrhage, which had recurred, instantly ceased when Dr. Robinson made a local application of a 4 per cent. solution of cocaine. The stomach was more retentive, and there were evidences of beginning convalescence.

The condition of the blood gradually improved, and an examination made two weeks later gave the following results: The blood emerged from the puncture freely, much more so than from a healthy individual. It was of a good color and coagulated slowly. Microscopically the blood presented a normal appearance, with the exception that there were rather more large red corpuscles than are ordinarily seen. The microcytes had entirely disappeared. The color of the red cells was somewhat paler than normal. The Fleishl hemometer showed 70 per cent. of hemoglobin, and the hematokrit showed 84 per cent. of red cells. There was no leucocytosis.

At this time the finger was accidentally cut, and hemorrhage continued for thirty minutes despite the application of ice. When a 4 per cent. solution of cocaine was employed the bleeding was checked immediately, and did not recur.

*Family history.* The first child was born prematurely and died shortly after birth. The second child was a boy, who was perfectly well up to sixteen months old, at which time he began to bleed from the nose, and developed hydrocephalus at the age of three-and-a-half years. The attacks of epistaxis from which he suffered were frequent, severe, and uncontrollable. He would almost bleed to death, and then gradually recover. There were no other mucous membrane hemorrhages, and at no time was there purpura. This child finally died of hemorrhage from the nose. The third child was a boy, who was perfectly healthy until the age of two years, when he died within forty-eight hours

from malignant scarlet fever. At no time was there any tendency to hemorrhages nor evidence of hemophilia. The fourth child was a boy, who died of hemorrhage from the mouth at the age of eighteen months. He was anemic, poorly developed, and an eruption was observed upon the skin. The first hemorrhage occurred when he began cutting teeth, and the quantity of blood lost was considerable. Later, when the molars were erupted, a fatal hemorrhage occurred, despite the use of every known means for its relief. The fifth child was a girl, who died at the age of three months without showing evidence of hemophilia.

The mother of these children is one of a family of ten, all of whom were healthy. She has never shown any tendency to hemorrhages, with the exception that after the extraction of a tooth she observed that the amount of hemorrhage was greater than normal. This fact was well recognized by the dentist who would extract one tooth, but declined to remove a number at one time. The father has never shown any hemophilic tendency, denies syphilis, and has always enjoyed good health. The maternal grandfather is said to have been "scrofulous," and had enlarged cervical glands, which might have been tubercular or syphilitic. With this exception the other members of this family, which are numerous, and may be traced to the third and fourth generations, have never known of a single case of the bleeders' disease. The father's family was also traced to the fourth generation, and the members of it were intelligent, healthy, and vigorous, not a single case of hemophilia having occurred.

**REMARKS.**—These cases are particularly interesting for the following reasons:

1. That each of these cases occurred in brothers.
2. That they all showed the first tendency to hemophilia at an early age, particularly while teething. The oldest patient's trouble began with epistaxis, following an attack of cholera infantum,

which may have been a gastro-intestinal purpura. The first case is also interesting from its association with arthritis, from the statement that frequently the hemorrhage would occur in forty-eight hours after an exposure which would excite a coincident attack of arthritis and fever.

3. The fact that slight trauma would produce extensive hemorrhage, proving that the blood-vessel walls were remarkably fragile.

4. The extraordinary diminution of the coagulability of the blood.

5. The valuelessness of all the ordinary local remedies and agents for the relief of hemorrhage from the wound of the tongue, with the exception of the local influence of cocaine and ice, and the internal administration of the fluid extract of ergot. We are disposed to attribute the greatest influence to the enormous loss of blood, by which not only was the fibrin increased, but also the peripheral circulation was slowed, so as to allow of the gradual formation of a thrombus. The use of cocaine as a local hæmostatic was suggested by Dr. W. Duffield Robinson. The remarkably brilliant results obtained in the first case lead us to hope that similar good may be obtained in other cases.

6. The occurrence of marked flushing of the face as a precursor of an attack of hemorrhage.

7. The opinion of the father that the intense nervous excitement produced by these violent pains in these attacks of arthritis may be an exciting cause of epistaxis.

8. The greater frequency and violence of these hemorrhages since removal from an altitude of 1800 feet to that of 2200 feet, and the consequent deduction that hemophilics should be removed to the sea level.

9. The occurrence of repeated attacks of acute arthritis with intense pain, redness, and great swelling in association with fever and sweating, which are so frequently observed in hemophilics, and the fact that they were erroneously diagnosed as attacks of rheumatism. The

want of coagulability of the blood at the time of these acute outbreaks, their occurrence forty-eight hours after exposure to cold or damp, the frequent coincident occurrence of hemorrhage, and the absence of endocarditis, are all points in favor of the supposition that these were not attacks of rheumatic arthritis, but were hemophilic in origin, perhaps due to the effusion of blood into the joints.

10. The second case is interesting from its association with hydrocephalus and the occurrence of death from epistaxis.

11. The third case illustrates the importance of teething in producing the first manifestations of hemophilia, and shows how readily death may occur from this cause.

#### *ENLARGED BRONCHIAL GLANDS.\**

By PHILIP F. BARBOUR, M. D.,

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The condition of enlarged bronchial glands is far more common than textbooks would lead us to infer. That they are productive of great trouble as a starting point for tuberculosis, is admitted by all. In fact, many writers speak of the condition only under the name of Bronchial Phthisis. The difficulty of recognizing their enlargement is perhaps the greatest reason why they are not ascribed the importance which they merit.

I do not wish to make this lesion a scapegoat for inaccurate diagnoses, but to define as clearly as possible the clinical history and to discuss the differential diagnosis around which hinges the obscurity in the cases. However difficult diagnosis may be in the adult, all concede that it is more difficult in childhood. We place so much dependence upon the verbal accounts of aches and pains, that a deaf and dumb adult taxes to the utmost

\* Read before the Louisville Clinical Society, Nov. 13, 1894, and contributed to the AMERICAN THERAPIST exclusively.

our diagnostic skill, and a child who will not lie patiently while we percuss and auscultate is usually treated on general principles and trust in Providence.

The patient study of pediatrics has added much to our knowledge and has trained our observation so that many of the diseases in children can be diagnosed at a glance. There is not so much variety in diseased conditions as is found in the adult, and diagnosis by exclusion is therefore easier.

The bronchial glands are lymphatic glands lying about the bifurcation of the trachea and following the course of the largest bronchi. The lymphatic ducts of the lungs begin from minute openings or stomata between the flattened transparent epithelial cells lining the alveoli, and empty into the lymph lacunae in the alveolar walls. During inspiration the alveoli are dilated and the stomata in this way enlarged. The aërostatic pressure tends to drive all foreign matter in the alveolus into these openings. Both the superficial and the deep lymphatics unite in carrying their lymph to the bronchial glands. That the glands pick up a great quantity of foreign matter, is shown by the change in color from the pink of childhood to the deep black of old age. They also may pick up bacteria, as has been demonstrated by many an autopsy.

Inflammation, whether acute, subacute or chronic, interferes with the normal work of an organ. An enlarged bronchial gland which has been the seat of an inflammatory hypertrophy and hyperplasia is not in condition to perform its work at the gate-way of the lung. It interferes with the return flow of lymph from the lungs. This interference with the lymph circulation may be followed by lobular or interlobular formation of new tissue, and the secondary pressure may cause congestions and exudations in the air vesicles.

In the next place, the normal resistance of an inflamed gland is much diminished. If tubercle bacillus finds entrance into a lymph node, it is very probable that it

will be destroyed by the phagocytic action of the gland. At least that is the best explanation we can offer at present for observed phenomena. But if the lymph node is in a disabled condition by reason of inflammation, overwork or other cause, and is attacked by a tubercle germ, it offers ineffectual resistance and passes into a caseous or tubercular condition.

Tubercular infection of these glands accounts for the occurrence of tuberculosis in many children. The frequency with which tuberculosis in children starts in the lymphatic system and becomes generalized is in proportion to the frequency with which it is localized in adults. It is rare to find tuberculosis of the apex of the lung in the child. It may be generalized over the lungs or brain or abdominal cavity, and usually is so. On the other hand, diffused tuberculosis is much the rarest in adult life.

I do not believe that every enlarged lymphatic gland is necessarily tubercular. That they often become tubercular no one can deny, and that the tendency of chronically enlarged glands is towards tuberculosis may be conceded. But to claim that the tubercle bacillus is the only irritant that can produce the prolonged hypertrophy, is asserting too much. There is no doubt that the inflamed glands in the neck or thorax are exposed to the tubercle bacillus and their vulnerability is increased; therefore, without treatment we may fear the development of the germ. With active treatment, we shall in the great majority of cases prevent any further danger.

The scrofulous or strumous diathesis, which I regard as separate and distinct from the tubercular diathesis, is a predisposing cause to the condition of enlarged glands. But they are found very frequently where there are no evidences of scrofula at all. They occur after acute bronchitis, pneumonia and the various affections of the lungs. In the adult they usually undergo speedy resolution and return to the normal. In children, how-

ever, owing possibly to the unmatured condition of the lymphatic system, they do not heal so rapidly, but may persist and give rise to certain symptoms which are suggestive, if not differential. By all odds the most frequent causes of the enlargement of the bronchial glands are measles and whooping cough. As both diseases occur most frequently in the child we should expect to meet with this sequela more often at that age. It is probable that the majority of children soon recover from these attacks, but there are not a few who suffer afterwards from a peculiar spasmodic cough. The mothers often ask if the child is not threatened with another attack of whooping cough. The cough is almost identical with the cough of pertussis, except that there is no whoop, and it is not followed by vomiting. Sometimes there is a turgescence of the face from an impeded venous circulation, or phonation may be affected. The physical examination of the lungs under such circumstances is especially difficult in the child. Inspection, palpation and mensuration will prove of no aid. Granting that an enlarged gland is the cause of the trouble, percussion may or may not reveal it. Usually the glands are placed too deep to give dulness, especially as they are small. Occasionally, however, dulness may be gotten anteriorly on either side of the manubrium, for the depth of the child's chest at this point is very little, and a gland on the anterior surface of the bronchus is nearer the front than the back of the chest. It is the anterior projection of the enlarged gland that interferes with the venous return from the upper extremity. Even if dulness is made out, care must be exercised to determine that it is not due to atelectasis, which occurs so frequently and so easily in children. The permanency of the dulness would of course be of aid in the diagnosis. Owing to the fact that an enlarged gland is, relative to the size of the throat, larger in the child than the adult, dulness is made out more easily in the child.

Auscultation will reveal symptoms of compression of the bronchus as a rule. The bifurcation of the trachea is a little higher in the child than in the adult, and lies on the level of the third dorsal vertebra or interspace. The right bronchus is more superficial than the left, and may easily be auscultated if the stethoscope is placed just internally to the root of the spine of the right scapula. The left lies a little lower and deeper. In most of these cases, by listening over the bronchus you will obtain a sonorous or large mucous rale. Frequently the sound is conveyed over the whole chest, but the point of maximum intensity can be traced to the location of these glands. That these glands exert sufficient pressure upon the bronchus to set up inflammatory processes there, has been demonstrated by post-mortem findings. In fact, a gland that has undergone caseation and ulceration has often been eliminated through the bronchus.

Or the compression may be so great as to markedly cut off the entrance of air on that side, thus lessening the normal breath sounds, or even doing away with them entirely. Prof. J. L. Smith mentions a very interesting case of this kind on which he held an autopsy.

Dr. Eustace Smith asserts that whooping cough may be diagnosed before the advent of the whoop by the enlargement of the bronchial glands; that if the child's head be bent horizontally backward and the trachea thus carried upward and forward, the stethoscope over the sternum will reveal a humming sound which is produced by the enlarged glands pressing on the returning venous circulation. *En passant*, I do not agree with him.

The symptoms, then, are those of compression. Of the numerous sources of compression that may occur in the adult thorax, only a few are at all met with in the child. Thus, cancer of the posterior mediastinum, pleura, or lung, aneurisms of the arch of the aorta, mediastinal abscesses, while rare in the adult are practi-



cally never found in the child. Exostoses from the sternum, clavicle, or vertebra are infrequent, and vertebral caries would be easily recognized if sufficient to cause any bronchial pressure. Pericardial swelling should be excluded without trouble, though the normal outlines of the child's heart are not so definitely made out as they are in the adult. This leaves hypertrophy of the lymphatic glands as practically the only pathological condition to exert compression.

The lumen of the bronchus may be lessened by constrictions and inflammatory thickenings. Strictures, unless congenital are mainly syphilitic, and may be left out of discussion. Inflammatory thickening of the bronchus would produce the sonorous rales, or a localized inflammation would account for the mucous rales, but unless produced by external compression and irritation, they are pathological curiosities. It cannot be asserted positively that there occur no cases of an idiopathic bronchitis localized in this portion of the air-tubes, for on autopsy of cases of bronchitis it is frequently difficult to find any evidences of inflammation although the symptoms may have been marked and generalized. But it is not the nature of bronchitic inflammation to remain in one spot unless there is some localized irritant, and that brings us to the point that an enlarged gland is the only source of irritation at all likely to be found in this situation.

My purpose has been to recall to you, that enlarged bronchial glands are frequent after various affections of the lungs, and especially after measles and whooping cough, and to show that symptoms of stenosis of the bronchi may almost certainly be ascribed to them.

If the condition is recognized early, before the gland has become tubercularized, it may be relieved by appropriate medication. After bronchial phthisis has supervened, the usual symptoms of phthisis, such as fever, night-sweats, etc., will attract our attention. We are often able to locate the infected spot by the application

of the physical signs as above indicated. Of course the chances of recovery are poor, but we may hope to accomplish better results here than in infection of the lungs, for theoretically, lymph glands ought to be able to counteract the organisms much better than any other tissue of the body. Our object should be, then, to promote the activity of the lymphatic system by using such agents as have been recommended from time immemorial for the treatment of the scrofulous diathesis. Cod-liver oil and iodine are the two most reliable agents we possess for accomplishing this object. The iodine may be given in syrup of the iodide of iron, or as I have most frequently prescribed it, in potassium iodide. Ammonium chloride is not usually recommended as having any influence upon the lymphatic system, but combined with potassium iodide it has rendered me valuable service in the treatment of enlarged glands. But the therapeutic agents may be varied at the preference of each one, so that the end to be accomplished is attained. It is the recognition of the diseased condition which is most important, and that it merits our consideration is proven by every case of bronchial phthisis.

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#### DISCUSSION.

Dr. J. B. Marvin : I simply wish to emphasize one or two points made by the essayist. There is always great difficulty in making a diagnosis of enlarged bronchial glands, especially in the child, until the symptoms become so very marked that you can make a shrewd guess even in the absence of physical signs. I have had a fairly moderate experience in the physical diagnosis of diseases of the chest, and I must confess that I always feel a great deal of hesitation and doubt of my own ability to map out by percussion the limited area of dulness, especially if that area is near the manubrium sterni. I think it is well, as the essayist has said, to always practice auscultation in these

cases, as this often gives us better and more rational indications. The pressure of these enlarged glands often gives rise to a cough, which in the absence of any other symptom that can be detected, should always cause us to suspect the nature of the trouble.

Another point the doctor did not emphasize as much as I thought he might, is that those conditions of the glands, so-called scrofulous or strumous, described by some authors as tuberculosis of the lymphatic glands, are in a great many cases amenable to treatment. Every general practitioner must have seen cases in children, the so-called *tabes mesentericus*, where there have been glandular enlargements about the belly, on the neck, etc., that under iodide of iron and cod-liver oil, proper diet and hygiene, have cleared up and the patients lived for years.

With especial reference to enlarged glands about the neck,—I have had considerable experience with such cases. I saw a lady to-night who has been under my observation for the last fifteen years. She has a chain of these glands enlarged in the neck, which gives her considerable pain, neuralgia, etc. There is a family history of phthisis. Many authorities recommend the external application of iodine for the cure of these enlarged superficial glands. I believe irritant applications do more harm than good. I have given this patient tonics to build her up, sent her to the country where she could get the pure air, with instructions that she take plenty of exercise. As a result of this treatment she is the picture of health, and has no trouble whatever with the enlarged glands.

I have several children in another family under my care, the mother dying of phthisis. The oldest child has nasal adenoid growths, is a mouth breather, but otherwise a very robust and healthy child. The next child, a little boy, a very handsome little fellow, has a number of these enlarged glands which have softened and I have had to curette them. The third

child, a little girl, while east last summer began to run down in health and came back with enlarged bronchial glands which could be easily be detected.

My experience certainly has been, that most frequently we find enlarged bronchial glands in children who have adenoid developments about the nose, or posterior pharynx, enlarged glands about the neck or in the groin. Is it also not a fact that these glands may become enlarged following any source of irritation, acute or chronic, and then constitute a fertile soil for the development of the tubercle bacillus, and from there spread the infection to the throat and lungs, as the essayist has indicated? But is it not also equally true that these bronchial glands may act as sponges, as it were, and filter and keep out the tubercle bacillus for quite a period of time? I have seen the tubercle in these glands when it could be found nowhere else. Loomis, of New York, who wrote a capital paper on the subject, offered this as an explanation in many cases where the tubercle was found in the gland without any history whatever of tubercle anywhere else, showing that these glands in one sense may be conservative and healthful, up to a certain point, of course.

Dr. J. W. Irwin: I rise to commend the paper; it covers the field very well so far as it goes. But it is defective in one respect—there is no diagnostic point mentioned by which we can ascertain that the bronchial glands are diseased. The location of the bronchial glands makes it nearly impossible to determine by auscultation or percussion whether they are enlarged or not.

Some writers have said that whooping cough was due to disease of these glands. They pointed out the way by which it may be ascertained that whooping cough was coming on some time before the development of any of the usual symptoms. It was stated that when the patient was lying on his back he would have a cough very much like that of croup, which especially indicated that he was going to have

whooping cough. I have never seen any of these cases myself. The same authors pointed out conditions of the chest which they ascribed to disorders of the bronchial glands, and autopsies revealed pigmentary deposits in the glands. This was before bacteriology had reached the point where it is to-day.

My own experience with enlarged bronchial glands might be summed up in the adult in two cases, and in those I am not sure that there existed any disease of the bronchial glands. A lady, thirty years of age, has a marked depression of that portion of the chest on the right side from the first down to the fifth ribs. I can lay my hand flat in the depression. This is a point that has not been mentioned before, although flattening of the chest has been recognized in disease of the bronchial glands.

The paper is indeed instructive, but lacking in much, *i. e.*, that we have no positive diagnostic signs of enlarged bronchial glands. We have to assume in these cases that there is disease of the bronchial glands, as far as I have seen. What part this condition plays in bringing on phthisis pulmonalis is another question. I am very much inclined to concur in the opinion expressed by the previous speaker, that the bronchial glands may act as sponges to receive the virus and possibly destroy it.

I cannot believe that laryngismus stridulus is caused by enlarged bronchial glands; if it is, the suddenness of the attack is peculiar. A child may be perfectly well and in an hour or two have an attack of laryngismus stridulus. It would be well if the subject could be studied more in detail. Some valuable papers have been written on this subject, but for all practical purposes, we are still in the dark as to the part bronchial glands play in the system, or in bringing on diseases of the lungs.

IN THE treatment of cases of long-standing psoriasis, in which arsenical preparations have failed, Dr. Cantrell has observed good results following the internal use of oleoresin of copaiba in doses of five minims, three times a day.—*Phila. Polyclinic.*

## HEREDITY IN INSANITY.\*

By ROBERT H. CHASE, M.D.

The most common of all diseases is insanity; the most common cause of insanity is heredity. In no class of disease is the transmission of a predisposition to ill health more potent or more evident than in insanity. This fact renders this subject one of the most important in the range of medical science.

The reasons for this great phenomenon are not hard to find or difficult to understand. If the mental and physical traits were not transmissible then there would be an end to all training and all development. As one writer aptly puts it:

"If the child did not inherit the result of all that had gone before, with additional power of development on his own part, all social growth would be rendered impossible. The torch of civilization is handed from father to son, and, as with the idiosyncrasies of mind, so the very body itself exhibits well-defined marks of its parentage."

Thus it is, undoubtedly, that there is a great fundamental law of nature, that the attributes of the parent descend to the child. This seems to be particularly true of the failings, the defects, the infirmities of the parent.

There have been opponents to this proposition, particularly as regards the hereditary character of insanity. Dr. Bucknill has thrown doubts upon the importance of inheritance, and has said that if insanity be so easily transmitted from parent to child, how is it that so many in a family escape? The reply to this argument sweeps it away entirely. First, it is a well-known fact that a new generation may escape entirely, or to a large extent, from the mental taint of their progenitors; but who can be certain that the taint is actually absent and not held in abeyance. Second, the study of hereditary transmission of various parental peculiarities shows that

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heredity is prone to select only certain individuals in a family; take, for example, the peculiarity of the presence of an extra finger or toe. This anomaly may run for many years in a family, selecting only a few individuals, or even one alone in a generation. Third, the more obscure fact in the law of heredity, that a tendency may be transmitted from one generation to the third, through a second generation which may show no development in the person transmitting it. One of the most beautiful illustrations which we have of this freak of nature, is seen in hemophilia, where a daughter who is not a bleeder may transmit the tendency to bleed from her father to her son.

When we become better acquainted with this subject of heredity, doubtless we will find that there are well-defined principles by which mental taint is transmitted; already we know that heredity in insanity follows, to a great extent, certain definite tendencies. In this manner insanity may be transmitted direct as far as kind goes, so that the hypochondriacal patient may have a hypochondriacal child; although frequently the inheritance may be altered in form, as a maniacal parent having a melancholic or epileptic child. Another proneness of inheritance seems to be the transmission of the tendency to take on disease under similar conditions, such as age or childbirth. Thus one family inheritance is a tendency to pass into a state of weak-mindedness with melancholy at a certain period of life. Likewise instances are recorded in which mother and daughter have suffered from puerperal insanity.

In taking up the subject of heredity in insanity in as scientific a manner as our present data will allow, it is well to define exactly what we mean by the term. By heredity, in mental pathology, we mean an original predisposition to mental alienation transmitted to children from their parents.

This definition becomes necessary when we come to study the frequency of the transmission of insanity, for different ob-

servers vary in their figures, due, we will find, largely to their variance in definition of heredity. For example, Marcè claims that we find some antecedent in nine-tenths of all cases; Esquirol, on the other hand, found this predisposing cause in one-fourth of 1375 patients whose histories he examined. Figures of other observers vary between these extremes, due undoubtedly to the latitude allowed by the different observers in their search for previous cases of insanity in the families of the patients so afflicted. Those observers whose percentage runs very high have included almost any connection by blood, while those whose percentage is lower have limited their examinations to direct ancestors, as parents, grandparents and great-grandparents. In this dispute the medium course in estimating the number of patients whose insanity is due to inheritance is the safer one. On examining the figures of all the various observers, it is a modest estimate to say that the figures vary from 40 to 60 per cent.

There is a nomenclature in the study of this subject which it is necessary to comprehend to follow it intelligently. Heredity, when it is attributed to parents, is *immediate*; when it is traced from grandparents having skipped the parents, it is then *mediate* heredity. When it has existed for many prior generations it is called *cumulative* heredity. It may be on the side of both parents, in which case it is *double*, or *from convergent factors*. When it is from one parent it is *simple* heredity, either paternal or maternal. According to Esquirol, the latter is the more serious form of the two; it is also three times more common.

When hereditary insanity appears in the child at the time that it appeared in the parent it is called *homochronous*. When it appears in children before it is seen in the parent it is called *anticipatory*. When the hereditary taint reveals itself by a mental disorder identical with that of the parent it is called *homologous*; when it is modified in passing from one generation to another it

is called *dissimilar*, or *transformed*. When it becomes more and more intensified by transmission it is said to be *progressive*; if it is alleviated by a series of fortunate crossings it is *regressive*.

The forms of mental alienation that are more predisposed to transmission are undoubtedly suicidal, reasoning, and the several forms of periodic insanity; while acute mania and melancholia compromise the family to a much less degree. In pursuance of this subject Dr. Dégis' recent work is interesting. This observer has taken up the biological features of insane families and has developed the theory that heredity in mental alienation presents itself under three morbid types with clearly defined characteristics:

1. The neurotic, or neuropathic type, which originates in the neuroses, and gives rise to neuroses and neuropathic insanities.

2. The cerebral or congestive type, originating in cerebral disorders and giving rise to cerebral affections, complicated, it may be, with insanity.

3. The vesanic type, originating in pure insanities, giving rise also to pure insanities, or vesania.

The special evolution of each of these hereditary types, according to this authority, permits to a certain extent the foretelling to what category of mental disorders the members of a family are particularly exposed.

Thus, for example, general paresis does not arise from insanity and does not engender insanity. Like the cerebral diseases, it is born of cerebral affections, and gives rise to the same. It follows that general paralytics, not being descendants of the insane, or producing the same, their children escape vesanic heredity; and if they are doomed to any special class of disease by reason of the general paralysis of a parent, it is evidently not to insanity but to cerebral affections of all kinds. Although the biological study of the family history of the insane of these various types has but recently been touched upon by observers, yet this field is rapidly wid-

ening, and it is probable that the day is coming when it will be possible for a physician in case of hereditary predisposition to formulate scientific rational opinions, not merely a response empirical, so to speak, made solely to reassure the interested parties.

The prognosis in heredity predisposition in insanity is unfavorable as to permanent recovery; although it may render the likelihood of a primary recovery more probable, yet the possibility of a permanent cure is less probable. Curiously enough, some observers have claimed a higher percentage of recoveries in hereditary cases than in non-hereditary cases—in the table of the Crichton cases, where in a large number reported, the percentage of recoveries in hereditary cases was 36 to 32 per cent. in the non-hereditary. But the great mass of statistics exhibits the opposite result. Krafft-Ebing has demonstrated the fact that those cases of hereditary disease which were marked by sudden explosions of insanity, the prognosis was favorable, while those which were characterized by a long incubation it was unfavorable. The Crichton cases happened probably to contain a large percentage of the former class. The great tendency of hereditary insanity is to relapse. The diagnostic value of a hereditary tendency to insanity depends on its degree. Thus the insanity of one parent would indicate a less degree of predisposition than that of one parent and an uncle, or still less than that of a parent and a grand-parent, or of both parents. Again, the insanity of a parent and a grand-parent with an uncle or an aunt in the same line may be held to indicate a stronger predisposition than even the insanity of both parents.

The significance of the insanity of parents will depend to a large extent upon the period of its onset. The insanity of a parent occurring after the birth of a child, if it arose from a cause adequate to excite it without previous predisposition, would be held, of course, as of no value in the formation of a hereditary tendency.

The insanity of relatives farther out than parents, uncles and aunts, brothers and sisters and first cousins, is not worth anything except in corroboration of nearer and weightier facts. But the influence of other related diseases to insanity occurring in those near akin, such as eccentricity, alcoholism, epilepsy, hysteria, hypochondriasis, vicious or criminal tendencies, etc., may be of great import.

It will thus be seen that the evidence of hereditary predisposition may be of such a character as to render insanity in a patient an event in the highest degree probable; or, on the other hand, it may be so weak as to add a scarcely appreciable amount of probability to the character of the disease.

The treatment of heredity in insanity is, after all, the most important, because the most practical side of the question. Of course, the most decisive way to treat this subject would be to stamp it out by forbidding the marriage of persons so tainted; but unfortunately, as in our syphilitic and tuberculous cases, this is impossible; so our efforts must be directed to preventing the appearance of insanity in such cases, or, if impossible, of ameliorating its condition when it appears. In children of such parents, method, patience, persistent command of temper, self-denying and much knowledge of child nature are necessary. As to choice between home and school treatment, it is impossible to decide all cases off-hand. Some do better at home, some do better at school; few will do well at home, however, where it is impossible to be strict without being stern, or to carry out the necessary discipline without setting aside the claims of natural affection. The selection of the proper persons to carry out these plans of discipline is by far the most important factor in the early history of the case.

Again, a sound mind needs a sound body; and exercise, food, and raiment exert marked control over the health of these children. Their lives must be a happy medium between the Scylla of over-

exertion, over-discipline, over-study, and the Charybdis of the antithesis of these factors.

When the child has become the man, or at least when he comes to be his own master, then is the time of greatest trial. The physical and moral storm of puberty must be encountered, and great temptations have to be met with less guidance. When the outbreak is imminent the problem arises, should the youth or man continue or stop his regular occupation? This is a question which cannot be answered without a study of the individual case. In some instances it is better for the patient to do this; in some worse. The only general rule to follow is, that if the calling is attended with anxieties which weigh upon the ailing mind, it should either be given up for a time or its burden should be lightened.

Should the threatened patient travel? This is an easy solution of the problem and an error often into which many physicians fall; it is so easy to order the patient away, that it is adopted with more frequency than wisdom. Change of scene may do good, but constant change of scene with its labors, vexations, and trials, especially in a foreign country, may do much harm. A threatened case of insanity should not be sent to travel without guarantee that proper care and efficient watch should be provided for him. Travel should include due provision for care and protection, the right admixture of rest and fatigue, change and repose. Under these circumstances it may be a very fair thing to try.

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DR. BALDY teaches that vaginal douches of hot water, as commonly used in the treatment of pelvic or uterine inflammation, are positively harmful. Hot water used by the patient in the crouching position simply adds congestion to an already inflamed part. To derive benefit rather than harm from the treatment the patient must be reclining and not less than a full gallon of water at a temperature of 105° to 110° F., should be used. Experience teaches that it is impossible to get dispensary patients to observe these rules, and consequently douching is not ordered except for cleansing purposes.—*Phila. Polyclinic.*

## HEREDITY: ITS RELATION TO INSANITY AND IDIOCY.\*

By JOHN B. CHAPIN, M.D.

There has always existed a deep-seated conviction that certain diseases are transmissible by inheritance from parent to offspring. This conviction is strongly fortified by an array of statistics which, if accepted without reservation, might in themselves establish the fact. It is quite common to place insanity and idiocy in this category. So prevalent is the belief that insanity is directly transmitted by inheritance that in medico-legal proceedings it is usual to consider it a strong defence to show that insanity existed in the family of a person charged with crime. So well-grounded is the opinion that insanity may be due to a direct inheritance, that its existence is the shadow that darkens households, affects plans of domestic arrangements, blights the happiness and shapes the destinies of a large number of persons. Doubtless the mystery that surrounds the complex operations of the mind—the reported results of observations by physicians—the absolute ignorance of the laws of heredity—beyond the ken of human comprehension—have together conduced to the acceptance of speculations as actual results of well-established facts. Doubtless religious views, coincidences of events, overworked facts, and ignorance have exercised an influence in the formation of opinions of this subject and their unquestioned acceptance.

That every species produces its kind, is a universally recognized law. That there are physical and psychical characteristics which belong to the individuals making up the many nationalities which are transmitted and preserved from generation to generation; that there are so-called temperaments which have a certain uniformity of physical and psychical development so that they may be recognized and de-

scribed, is a matter of common observation. Darwin has also presented the theory "that each of the atoms or units constituting an *organism* reproduces itself."

Heredity manifests itself in family likeness, the hair, gait, height, form, temperament, and physical development. The "atoms or units" proceed in accordance with some uniform law of development, so that, however the stock may be crossed, the rule is that man transmits his exact physical counterpart, subject to modification due to environment, climatic conditions, etc. That the vigor of the stock does not abate is witnessed in the fecundity of the human race.

Whether a similar unvarying law governs the transmissibility of psychical qualities may be a question or in doubt. The same consensus of opinion, however, is disposed to conclude that mental traits are transmitted from parents to children in the same degree that physical qualities are inherited. This is partly true only, but the exceptions are so numerous that it may be considered a chance that the children will possess the psychical qualities of the parents. It has been demonstrated by histories of families in England that strong qualities of mind have been transmitted through generations. On the other hand, this Society may be familiar with the history of a family in New York State comprising twelve hundred persons of several generations, traced by Mr. Dugdale, who as paupers, lunatics, idiots, criminals, murderers, and prostitutes were estimated to have cost the county of Ulster the enormous sum of one million three hundred thousand dollars (\$1,300,000). In making inquiry of the ancestry of a certain family in Yates County, New York, it was ascertained definitely that twenty-two insane persons, criminals, paupers, or idiots could be traced in two generations to an abandoned woman. The influence of marriages of consanguinity deserves a notice in this connection. Dr. S. M. Bemiss collected some statistics which

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show the nature of the deterioration that may come from this source. Of ten instances of incestuous commerce, 31 children were born; 29 were defective, viz., 19 idiots, the balance epileptic or deformed. Of 823 marriages of cousins, 3942 children were born, of whom 1105 were defective, 145 deaf and dumb, 85 blind, 308 idiotic, 60 epileptic, and only 38 insane. The results of consanguineous marriages furnished a heredity of physical imperfections rather than of psychical disease. Notwithstanding these results, and the necessarily crude notions that commonly prevail, as well as the probabilities they suggest, it must be stated there is absolutely no unvarying law of transmission established by these reported facts, because of well-known exceptions.

The average normal psychical development is not as often due to transmission or inheritance as to influences of environment, education, the degree of mental receptivity, together with the evolution that goes on from age to age. The quality called genius and knowledge does not seem to be transmitted by inheritance, but a receptive faculty, a capacity to acknowledge and evolve ideas, may be a heredity. The term heredity is well-defined as "the principle or fact of the transmission of psychical or mental qualities or tendencies from ancestors" (*Gould's Medical Dictionary*). The instances of the transmission of "qualities and tendencies" that have been cited, and those results which sometimes appear after consanguineous marriages, are marked examples of both physical and psychical deteriorations, mental and moral degeneration, of mental and bodily failure—increasing in intensity with successive generations—and of those defects that follow such marriages, according to the principle of revision or degeneration, in a backward direction, even to the extinction of the line of succession. Dr. Seguin observed: "I have not, to my knowledge, ever had to attend an idiotic son of an idiot, or even the son of a man of weak intellect."

A hereditary disease is one that may be transmitted directly from parent to child. Admitting that it is established that certain physical diseases are inherited, can it be shown that insanity should be classed in this category? If it is not an *inheritance*, may it not in certain cases be ascribed more properly to the results of heredity? And within what limitations? Individual opinions formed from a knowledge confined to a limited number of cases, lead some to a conclusion without further reflection. Psychological theorizing leads others to collect data to support their views, and a personal element comes to enter in to throw doubt about the value of any statistics. Hospitals for the insane have contributed their quota, which their medical officers have reported. Thus, Esquirol reported 33 per cent. of his cases were hereditary; Brigham, 26 per cent.; Thurman, 32 per cent.; Aubanel, 4 per cent.; Burrows, 85 per cent.; Hood, 9 per cent.; Moreau, 90 per cent. These statistics were all compiled prior to 1860, and cover a period of fifty years. What rule was applied in their preparation, does not appear. The wide range of results at once suggests a great lack of uniformity of material, wide differences in opinion about what constitutes inherited insanity, and a wide latitude in speculation. Since 1860, the percentum of reported cases of hereditary insanity has decidedly fallen off, although insanity has greatly increased. In some reports of hospitals neither the terms "hereditary insanity" nor "heredity" appear in the list of assigned "causes." In other hospitals the number of cases assigned to heredity has been steadily declining. At the Pennsylvania Hospital for the Insane, of 10,562 cases, heredity was assigned as a cause of insanity in eight cases in every thousand. At the Utica (N. Y.), State Hospital, where statistics have been prepared with a considerable degree of uniformity, the annual percentage varies from four to six. While in some of the American hospitals it is somewhat larger than that just named,



generally the reported percentage in European hospitals is very much greater than in this country. Possibly this is owing to different social conditions that prevail, in-breeding, debauchery of parents, greater mental and physical deterioration, the lines on which observers have made up their statistics, as well as the tendency to accept and follow views of recognized authorities. Whatever may be the explanation of the differences of reported results, it is apparent that in recent years the tendency is to attach less importance to the assumption that insanity is directly transmissible by inheritance. By many it is wholly ignored as a direct factor in the production of any considerable amount of insanity, at least inheritance is not named as an assigned cause. If the statistics presented had been prepared by observers holding the same theories, and from exactly the same data, there could be but one conclusion—that the inheritance of insanity (if there be such a thing) is rapidly diminishing.

Referring to personal observations, an examination of three hundred and forty-seven patients admitted during two years in the Pennsylvania Hospital, showed that the probable and direct causes of insanity in one hundred and eighty-eight cases was neurasthenia, or nervous exhaustion from overwork, strain, and worry; some form of general ill-health; the puerperal state; septic conditions, etc., and the element of inheritance did not appear or was not ascertained. The remainder were cases of paresis and other forms due to brain degenerations, senile failure, or organic disease, some with a history of marked heredity. Twenty-seven, or 14 per cent., only had a family history sufficiently marked to warrant the assumption that heredity was the probable cause of insanity—that is to say, there had been insanity in parents or along a family line. Exceptionally marked instances of insanity in families have come under my notice, of which two may be briefly presented: Three sisters were brought to the Pennsyl-

vania Hospital on the same day. A brother, said to have been demented, had died about two weeks previously, as was inferred, from gradual inanition and neglect. All had similar delusions of suspicion, of the operation of unseen agencies, which extended to their food, clothing, beds, the air of their rooms. The family history could not be obtained satisfactorily on account of the extreme reticence of all parties. The father had held a high official position under the government. It was an illustration of those cases of rare occurrence where insanity is communicable in a family, or to persons closely allied in companionship and life, with few relations to the world about them. In this case one sister became insane, and gradually dominated by her superior will-power the other two. From the eccentricities of these people, their isolation and physical appearance, there had evidently been a degeneration, physically and psychically, from the normal family standard.

Recurring to the reference made to three hundred and forty-seven cases, mentioned above, it was stated that in one hundred and eighty-eight the cause in each was directly traceable to some incident in the life of the patient or to a physical deterioration or disease. There was sepsis, loss of body-weight, deterioration in the quality and constituents of the blood. The nutrition of the brain was impaired, and while many thousands of persons suffer in some degree from those conditions and recover, insanity, which is so often only a relative condition, was but a further incident in the cases cited. In other words, insanity, or mental disorder, as in these cases, was acquired. More than one hundred and forty recovered. Now, will it be said that they had acquired something they could transmit as an inheritance? If so, what was it? Is there anything material, as a bacillus of insanity, that may be received as an inheritance? That a neurotic temperament may be a heredity is believed to be in accord with

common observation. Such, however, is the superstitious, vague sentiment existing in relation to insanity that a fear of contamination is the family skeleton. In relation to the class of cases we are now considering, it is a practice to assure relatives, when recovery does take place, that the probability of a recurrence or of the transmission as an inheritance is no greater than in those persons observed by the physician who have a pneumonia, rheumatism, or fever. Suppose the fact were otherwise, and insanity in some degree was directly transmissible by inheritance, surely man would rapidly deteriorate and degenerate until mental soundness would be of rare occurrence, and in the case of idiots and imbeciles the race would end, as they would cease to procreate.

In the procreation of children, if both parents are of exactly equal potency and not related, the expectancy will be that the physical and psychical characteristics of their children will have a close resemblance to the parents. Thirty-one marriages of parties not known to be related or descendants of relations, produced two hundred and seven children. None of the children were reported to have been born with any defect (Dr. Bemiss). If the potential power of one parent is less than the other, and this may be the general rule, while the expectancy would be that the offspring would partake of the stronger parent, there is no absolute rule, even here, notwithstanding the probabilities. There is a corrective process in constant operation. That nature, constantly, wholly eliminates or limits the influence of the weaker element is certainly true, as many families show members of very opposite degrees of psychical development. The reverse is also true, that deterioration is sometimes not wholly eradicated, but continues in an increasing degree. Two persons of marked neurotic organization may transmit their temperament to offspring in a more intensified form, and in the second or third genera-

tion, if there is no cross by which it may be by chance corrected, a neurotic heredity or predisposition is established, from which may come with slight exciting cause some form of mental degeneration, acute insanity, epilepsy, etc. In-breeding of temperaments, then, rather than consanguineous in-breeding, is more conducive to the development of the neuroses, to eccentricity, and insanity of the degenerative type.

In the discussion of heredity in its relation to insanity and idiocy an attempt is made to show the diversity of facts and views that exists, that there is often a personal element that enters in the preparation of statistics, that there are limitations of our knowledge; also, to formulate an expression of views or principles which are now presented as conclusions:

1. Physical characteristics, those distinguishing the human species, are transmissible as an inheritance.

2. Knowledge, genius, and culture are not an inheritance, but depend rather on influence, education, and environment. Mental receptivity is transmissible. Psychical qualities are not necessarily an inheritance requiring favorable surroundings and circumstances for growth and development.

3. Insanity as a disease is not transmissible by inheritance, but may be acquired or evolved from a neurotic heredity as a basis.

4. A neurotic predisposition is transmissible by inheritance, but there is no absolute rule that it will be transmitted in any given case, or in any case.

5. In-breeding of neurotic temperaments is most conducive to the creation of a neurotic heredity.

6. Idiocy and imbecility may be a defect, having an origin in consanguineous marriages, pre-natal conditions, accidents, arrested development, infantile meningitis, tuberculosis, and lack of potency on the part of one of the parents from unexplainable causes.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### LEUCOCYTOSIS OF DIPHTHERIA.

In due course of time our readers will doubtless become familiar with that physiological process known as leucocytosis. Indeed, if they do not, it will not be for lack of having their particular attention called to the subject in these columns. Perhaps this has been "skipped" by many, owing to the resemblance of the word to a somewhat obscure disease, leucocythemia, which is characterized by an increase in the relative number of white blood-corpuscles, generally because of, or accompanied by, an absolute decrease in the number of red corpuscles. Unfortunately, this word does not express the true condition, and it would be necessary to employ two words instead of one. For example, we must have a word to indicate an increase, and another to indicate a decrease in the number of leucocytes in the blood-stream. With the proper prefix this is easily accomplished—by the use of hyper-leucocytosis for the former, and hypo-leucocytosis for the latter condition.

It would be of great interest to discuss just at this point the probable significance of the condition now known as leucocy-

themia, because it appears, from the standpoint of the writer, that an erroneous impression obtains. Instead of a disease, it should be regarded as a symptom of disease and treated accordingly, the increased number of leucocytes being taken as an indication that Nature is making an effort through the activity of these bodies to eliminate some objectionable substance from the organism. Still, Nature too often fails in this effort, probably because digestion is below par and there is consequently a lack of suitable pabulum for the multinuclear white blood-corpuscles. A leucocytosis occurring during the progress of any disease will be effective in promoting recovery—crisis or lysis—in proportion to the ability of the system to take the proper amount of nourishment from day to day, since, when nutrition fails, leucocytosis is rendered less effective against the inroads of bacteria and their products.

The foregoing remarks are prompted by the recent appearance of an article bearing directly upon this subject in relation to diphtheria. Dr. JOHN LOVETT MORSE, of Boston, Mass., (*Boston Medical & Surgical Journal*, March 7, 1895), has made some clinical and experimental observations which will doubtless be the means of creating an active inquiry into these questions by others who are so fortunate as to have the time and facilities at hand. In all, thirty cases of diphtheria were under observation, and the following extracts will serve to explain the importance and value of such investigations:

"It is evident from the table that diphtheria is accompanied by a very marked hyper-leucocytosis, larger even than that found in pneumonia. This has become well marked by the third day, and is probably present earlier. In a general way it increases as the disease progresses, is greatest at the height of the disease, diminishes during convalescence, and disappears with, or soon after the membrane. It also, in a general way, corresponds with the amount of membrane, varying with it directly. There are notable exceptions to this rule, however, as in case VII, where

the throat was full of membrane and only 8,000 white corpuscles were found, and in Case v, where there were 42,000, but only a moderate amount of membrane. There seems to be no evident connection between the glandular enlargement and the increase in white corpuscles. It is noticeable, however, that the fatal 'septic' cases with greatly enlarged glands all showed a very marked hyper-leucocytosis. Some of the mild cases, nevertheless, with little or no enlargement of the glands, showed just as much. The condition of the lungs and kidneys apparently had no influence in determining the number of white cells. It thus becomes evident that the hyper-leucocytosis is not due to any symptom or combination of symptoms, but is the result of some general influence which is present in every case. This influence can be no other than that of the toxine absorbed. Whether the individual variation is due to the amount of absorption, to some difference in the virulence of the toxine absorbed, or to some difference in the resistant powers of the person attacked, must, in the present state of our knowledge, be left unanswered. In the great majority of cases the increase was in the polynuclear neutrophiles, that is, the typical leucocytosis. In several, however, the proportions closely approached the normal. In a few, chiefly convalescent cases, there seemed to be a lymphocytosis; this, too, in cases without much external glandular enlargement.

"The number of the erythrocytes was, with one or two exceptions, always somewhat above normal. The only patient in which they were diminished was a woman, evidently subject to a chronic anemia. I am unable to give any explanation of this increase.

"This study establishes the fact pretty clearly, I think, that the examination of the blood in diphtheria as to leucocytosis is of no value in prognosis; for, although fatal cases have a pretty marked one, yet it is almost always present, and often very pronounced in the mildest cases."

In this connection it will be no disrespect to the author of these researches, to suggest that his conclusions are scarcely warranted. As already pointed out, a pronounced leucocytosis may be of no benefit, simply because the nutrition is reduced to such a low ebb that the manufacture of nuclein by the multinuclear

cells is suspended. The children of Israel, when in Egyptian bondage, were unable to "make bricks without straw," and the physical conditions are not materially changed in modern times.

#### POINTS ON PILOCARPINE.

The clinical position of pilocarpine is still in what might be termed a transition stage. Aside from its use in the treatment of erysipelas, and tentatively in some kidney and cutaneous affections, but little information of a clinical character has appeared in current medical literature—if an exception be made in respect to its recent recommendation for the relief of deafness.

The physiological rôle of pilocarpine upon the human organism furnishes an excellent illustration of the advantages of studying the influence upon cell activity. In other words, the study of pilocarpine medication supplies an appropriate opportunity for the study of the practical adaptation of cellular-therapy. In the treatment of deafness, for example, no one will pretend to claim that this drug has any special "affinity" for the nerves of hearing, nor upon the structures of that particular portion of the cerebrum in which are located the sound centres. Pilocarpine medication is often most efficient in relieving certain forms of cough. Given, a dry, hacking, irritable cough, that seems to persist from a lack of bronchial secretion—arrested by the irritation produced—small doses of pilocarpine will frequently arrest it promptly; and yet pilocarpine has no special affinity for either bronchial or pulmonary structures. It is beneficial in both cases mentioned because it promotes elimination; it not only favors or produces greater activity at the points affected, but it produces similar results at all points, and thus waste-products are carried off and normal metabolism restored. It is on this basis that we are able to account for the advantages of pilocarpine in the treatment of erysipelas; not because pilocarpine has any specific or

other action upon either the disease as a whole, or upon the micro-organism associated therewith.

By way of illustration, let us assume that a patient comes to us suffering from the effects of exposure to cold. The acute symptoms may have partially subsided, but there remains the debility, malaise and anorexia resulting from faulty elimination of waste-products, and the patient does not feel disposed to engage in his usual avocations. We examine the heart, the condition of the pulse, make inquiry in regard to the excretions—and if the circulatory apparatus is in good condition, the patient is advised to take pilocarpine and go to bed. Until we have become familiar with the peculiar effect which this drug will produce, it is scarcely safe to hazard an intimation of the effect which a medical dose will produce, and it is usually best, therefore, to let the patient learn that from experience. Sometimes it will manifest itself by greatly increasing the saliva; at other times, the bowels or the kidneys will be affected; usually the cutaneous transpiration is greatly augmented, and in the absence of cardiac complications, the patient will react from this medication in a comparatively short period.

*The dose* will be regulated by the condition of the patient and the effect desired. In case it is desired to secure a gentle glow of the skin, with a slightly increased output of saliva, a dose of one-fiftieth of a grain of the hydrochlorate at intervals of one or two hours will be quite sufficient. This dose at the intervals stated will also be found helpful in the treatment of dry cough, provided the patient is to remain in the house. To secure more pronounced action, as much as one-tenth grain of the hydrochlorate may be given at bed-hour. This larger dose is generally attended with marked physiological action of the salivary glands, the skin, and not infrequently the bowels are affected. For several years the writer has used it extensively in the treatment of the various forms

of indigestion, especially those which were marked by dryness of the skin and thirst during the day, and found it a very acceptable remedy.

### *WATER DRINKING.*

From present appearances the American people are rapidly proving the truth of the prophecy that this country will eventually become the home of dyspeptics. Indeed, it is surprising to what an extent the drinking of water is practised, and especially ice-water. Now, while the drinking of ice-water, in itself, is not such a serious matter, the public ought to understand the objections which arise from the injudicious use. When a person sits down at a hotel table, the first thing which the waiter brings is a large glass of ice-water, frequently the glass is partly filled with ice, and of this the guest partakes freely. A shock is produced when this half-frozen liquid enters the stomach, and not until hot liquids, in the shape of soup for example, are taken into the stomach does the delicate nervous mechanism recover. Not only is a large draught of ice-water taken as a "starter," but the same is freely taken during the meal, with the result that peptic digestion is seriously delayed, and where a number of different substances have been introduced, it is but natural that fermentation or decomposition should take place, the actual digestive processes being delayed sometimes for several hours.

As previously stated, water drinking is not reprehensible, but there is a time for all things, and our object is to point out the proper time for this operation. A person will have much better digestion who avoids water or other liquids during the time that food is taken into the stomach, and especially is this true where starchy food-stuffs are eaten. The food having been thoroughly masticated, water becomes necessary, but it should be taken in moderation, and not too cold. Hydration favors digestion, because it enables

the products of digestion to be disposed of in the usual manner. By taking water towards the end of the meal, not more will be ingested than is necessary to complete stomach digestion. At the expiration of two and a half or three hours, when the contents of the stomach are passing into the small intestine, where starches and fats are taken care of, more water will be required. Thus, instead of taking all the water at one time, causing distension of the stomach and delaying digestion, it is taken as demanded for its proper purpose and the patient avoids the unfortunate consequences resulting from over-indulgence.

It will be asked, what are some of the symptoms of ice-water dyspepsia? To answer this question properly and completely, would require a moderate sized book; but some of the most prominent sized book, but some of the most prominent may be passed in review. One of the most common and least likely to be understood, is a lack of appetite for breakfast. This arises from the fact that water drinkers gorge the stomach during the day, producing the effects mentioned above, and it is necessary for the stomach to do its work during the hours of sleep. This work being imperfectly performed, the stomach, and intestinal tract, contains more or less gas and offensive mucous, so that it is out of order and threatens to "strike" in case it is called upon to do more work. In the course of a few hours after the person thus affected has been at work, or has taken a little exercise, the normal secretions begin to assert themselves, and the sense of hunger is awakened. Sometimes this derangement of function is manifested by insomnia, for which many drugs have been strongly advocated. These, it is to be regretted, accomplish nothing, except perhaps that they postpone the evil day. More good will result from a proper regulation of the dietary and the restriction of water drinking in one week than will attend the most approved medication for a period of six months.

It is a fact that persons suffering from either stomach or intestinal indigestion will, in time, become aware of the foods which disagree with them, and this results in a change in the form of the malady. Usually starches are first cut off, and the patient begins to feel that he is greatly improved, but water drinking is continued, and the stomach rebels, necessitating a further change in the diet. Most persons who suffer from insomnia do so because of a failure in the intestinal digestion; the starchy food-stuffs and fats are not properly manipulated, more or less distension of the bowels occur, toxic products are taken into the circulation, reach the brain substance and interfere with repose. We have an apt illustration of this condition when insomnia is due to mental excitement, since at this time the digestion of food is seriously delayed, and the toxic products being absorbed cause an irritation of the cerebral centres, banishing sleep.

Much controversy and no little excitement has arisen during the past ten years with reference to the usefulness of hot water, but to the writer this has seemed like a "tempest in a teapot," because the rules to be observed in the drinking of hot water are practically the same as should be laid down in regard to the use of cold water; and it seems but reasonable that had an all-wise Providence intended that human beings should drink hot water, hot springs would have been more equably distributed throughout the world.

#### PRECISION IN THERAPEUTICS.

In the current issue of the *Occidental Medical Times*, Dr. E. J. Boyes, of Oakland, California, makes some pertinent remarks under the caption, "Therapeutics, A Science of Precision," as follows:

Specific diagnosis takes precedence of specific therapeutics. Hence has arisen the tendency of men of genius to strain after new knowledge of pathology and physiology, and the resulting progress is a matter of pride and gratulation to all. It is good, but it is not enough. The task

of the diagnostician is, to-day, comparatively well defined and easy. With modern means of investigation and modern knowledge of conditions, he can examine the patient with scientific accuracy, and will announce the result with decision and pardonable pride. It is a remarkable fact that, though he has been all eagerness to find out what is the matter, he is apt to be somewhat indifferent as to what is to be done, and how.

This is precisely what is wrong with our therapeutics, and is just why medicine is still in a vague and chaotic condition. Moreover, it rests with the active practitioner to redeem the profession from this reproach by testing active principles and recording results. When they will do this as a class, we shall see a system of practical therapeutics that every one desires, and then will certainly take the place of experiment.

At the present time there are many drugs, too valuable to be discarded, that have not been presented in alkaloidal form; but that does not alter the importance of the fact that a large number of our best drugs have been reduced to active principles.

Dr. Boyes selects as an illustration, atropine, the active principle of belladonna, and briefly outlines a number of its appropriate uses, recording in all not less than twenty-two different diseased conditions in which it may be used with benefit. This is a comparatively small number of the many to which it is adapted, as the writer, without trying very hard, found eighty-six indications for its employment, this being the record introduced into the *Pocket Pharmacy*; and yet the critics who reviewed the book thought that too many uses were indicated for the various remedies selected. However, they were only such as he found in that excellent work, *Materia Medica, Pharmacology and Therapeutics*, collated by that indefatigable author, Brunton.

FROM Fort Dodge, Iowa, comes the announcement, that on April 1st, 1895, the first number of *The Iowa Medical Journal* will be issued. It will be published monthly from Des Moines, and the editorial staff will consist of about fifty of the leading physicians of Iowa.

## Current Literature.

**CACTUS GRANDIFLORUS.**—A case lectured on by Professor S. Solis-Cohen, exhibited the good effects of the persistent use of *fluid extract of cactus grandiflorus* in relieving *cardiac pain*. The lesion was mitral obstruction with leakage, in a woman thirty years of age. The lecturer stated that his own experience with this drug had been unsatisfactory, and he had not used it for more than a year past. In the present instance, however, it had been prescribed by his chief of clinic, Dr. Riesman, in whose hands the result had certainly been good. He was therefore encouraged to renew his own resort to cactus, and to give it for longer periods before again abandoning it. The dose, in the case demonstrated, was twenty drops three times a day.—*Phila. Polyclinic*.

**THE USE OF FORMALIN IN DERMATOLOGY.**—At a recent meeting of the Parisian Society for Dermatology and Syphilography, M. Potterin reported upon the treatment of skin parasites with formic aldehyde. He considered that Formalin belongs to the safest and most reliable antiseptics, for its vapors diffuse readily even through masses of fatty matter. This property makes it specially suitable for the treatment of deeply implanted sick hair, and also for the disinfection of the hair follicles filled with sebaceous matter. The application of a layer of absorbent cotton dipped in a 2 per cent. Formalin solution, and covered over with an oil-skin bandage, is well tolerated. In case of irritation of the skin, the bandage may be removed for a day.

**SEPTICEMIA FOLLOWING CONFINEMENT OR MISCARRIAGE.**—Dr. D. Rose, of Chicago, contributes the following to the *N. Y. Medical Journal*, with the claim that he believes the treatment to be new:

For the last three years or more I have been taking a course in the above-named cases that is original with myself, and one

which I have now tested in a sufficient number of cases to justify me in recommending it to the profession in general.

There is no doubt that many women have lost their lives from septicaemia, and I frequently hear of such cases still; but I venture the assertion that no case need result fatally from that cause if the following easy treatment is promptly and properly carried out.

If the above-given assertion be true, it is the duty of every physician taking such cases under his care to be influenced by another's experience.

As soon as any symptoms show themselves I bring the hips to the edge of the bed, introduce a bivalve speculum, and, with borated cotton in a Bozeman's long dressing forceps, wipe out thoroughly the whole uterine cavity until the cotton comes away odorless and clean. I then dip a bunch of the cotton in iodized phenol and daub it over the whole interior of the uterus. It has never caused pain or the slightest unpleasant symptoms of any kind, and from the first treatment (and one is often sufficient) I have never seen the symptoms increase. In a few hours the change for the better is surprising, and the rapidity with which involution takes place is simply marvelous.

I give internal remedies as indicated, and repeat the treatment next day, and every day in cases requiring it, until the indications cease.

Cotton will wipe away shreds which the intra-uterine douche leaves behind. There is no danger of fluid passing through the Fallopian tubes. You can tell when the uterus is cleansed and the exact odor and appearance of what you get away, which you can not do when using water.

The application of iodized phenol has all the advantages of that of mercury bichloride, and the rapid involution which follows its application can not be realized until it is seen.

Lacerations of the cervix are never left with thick, pouting lips and callous edges, and it will save from the necessity of many operations for the repair of old lacerations.

#### STREPTOCOCCUS INFECTION IN SCARLET FEVER.

—Dr. Rosa Engelmann, of Chicago, (*Journal American Medical Association*, March 9, 1895), has made an extended research on the subject of scarlet fever, collating the views of a large number of authors, and sums up her conclusions in the following words:

1. A specific scarlet fever germ or toxin is not yet demonstrated.

2. The disease is associated with a streptococcus infection.

3. A streptococcus admitted to be the cause of surgical scarlatina and puerperal fever.

4. A streptococcus admitted to be the cause of erysipelas.

5. The frequent association of the latter with puerperal fever, and it in turn with surgical scarlatina.

6. The relation of idiopathic scarlatina to surgical scarlatina and puerperal fever acknowledged.

7. The identity of the streptococcus pyogenes and erysipelas advocated.

8. Clinical records showing the association of suppuration, erysipelas and scarlatina in one and the same subjects, suggestive of the parallelism of these three infections and the probable biologic identity of these several streptococci.

9. Clinical differences and varying susceptibility to the one or the other due to heredity, age, anatomico-physiologic conditions, congenital disease, environment, life history of the invading host and its avenues of entry.

10. Disappearance of idiopathic erysipelas from the nomenclature. Analogously, idiopathic scarlatina may meet a like fate.

11. Natural immunity due to heredity and healthy, fully developed structure.

12. Acquired immunity, from antitoxins of the disease or through blood-serum therapy, that will revolutionize the treatment of this dread disease.

13. Inunctions disapproved of; antiseptic baths better, meeting anti-bacterial and physiological indications.



**FERRATIN.**—In the course of a discussion of the merits of substitutes for the inorganic preparations of iron, at a recent meeting of the New York Post-Graduate Clinical Society, Dr. Max Einhorn said, that good results had been obtained clinically from all the preparations of iron, and particularly with the more recent preparations of the albuminoids. With this latter preparation, we imitated the method by which iron was ordinarily introduced into the system from the food. He had no experience with hæmagallol, but he had tried a very similar preparation to it—ferratin. The object of using this preparation was also the same—the introduction into the system of a form of iron similar to that drawn from the food. This ferratin had first been obtained from the livers of swine, but it had afterwards been made artificially. He had tried the ferratin in a number of cases where iron had been indicated, and yet in which the stomach had been too irritable to tolerate well the ordinary preparations of iron. He had used it in about fifteen such cases without observing any digestive disturbance produced by it. He could not say that it increased the quantity of hæmaglobin more rapidly than the other preparations of iron. Undoubtedly an important part of all methods of treating anæmia was attention to the diet and the general nutrition. From his experience with ferratin he felt sure that it would not prove disappointing.

**ETIOLOGY AND TREATMENT OF CHRONIC METRITIS.**—Under this title Dr. J. H. Etheridge, Professor of Obstetrics and Gynecology at Rush Medical College, Chicago, contributes a monograph to the March number of *The Corpuscle*. We extract the following system of treatment, with operation:—The invasion of the uterus by the tubercle bacilli is a well established fact to-day. As our knowledge of the etiology extends, we may find other micro-organisms causing metritis.

From the foregoing remarks, it is evident that the only successful treatment

of chronic metritis must remove the micro-organisms which cause it. Any measure contemplating less than their removal will fail to cure. Failure to remove an infinitesimal part of the bacterial cause will soon be followed by the re-establishment of the entire invasion. Therefore the treatment must be thorough and radical.

Internal medication and local treatment will not accomplish the removal of the bacteria of metritis. Very many cases of benefit follow their use, patients even declaring that they are cured, but the microscope shows clearly that they are not radically cured, and time alone suffices to bring back many of the old symptoms. But one thing is now recommended as a radical cure for chronic metritis. That is curetting after dilating. It must be thoroughly done. The metritis should be a selected case, one without ovaritis or occlusive salpingitis.

**THE OPERATION.**—The vulva, vagina, and the cervical canal should be cleansed most thoroughly.

This operation is called *curettage*. To do it well the patient must be thoroughly anæsthetized and placed in the dorsal position with extreme flexion of the thighs. It assists greatly in the operation to make use of the Clover Crutch or of some similar devise. A rather wide perineal retractor readily exposes the cervix which is brought down as far as possible and held by two small lock vulsellæ, each placed directly under the broad ligament. The direction of the uterine canal having been determined by a probe, a small forceps, like the ordinary uterine dressing forceps, is then introduced within the internal os and opened as much as their strength will permit. This permits the introduction of a larger steel dilator, like the "Ellinger" or "Goodell," when the cervix can be progressively dilated to the desired extent. Then the internal surface of the uterus is thoroughly curetted with a "Thomas" curette, which has the flexible shank and can accommodate itself to any portion of the endometrium. In cases demanding

curetting there will at first be no sound made by the curette. As the scraping progresses and the instrument comes in contact with the muscle of the uterus, its sound will become more and more characteristically distinct, as though the instrument were scraping over cartilage or some similarly hard substance. Every portion of the uterus should be thoroughly traversed till its interior surface yields nothing but the harsh grating sound of the curette. Occasionally some spot either upon the posterior wall of the uterus or near the insertion of the fallopian tubes, appears to be so soft that the scraping sound of the curette is not obtainable. Where this is the case, the utmost caution should characterize the use of the curette lest it penetrate the uterine wall and pass into the pelvic and abdominal cavity. Such an accident has repeatedly occurred. I have never known a fatal result following it. When occurring early in the operation a severer attack of pelvic peritonitis seems to follow than when it occurs at the last stage of the curetting. The apparent explanation of this milder attack lies in the fact that when the operation is nearly completed the uterus is well nigh freed from infection. Thus out of five cases of penetration of the uterine wall three were followed by absolutely no symptoms whatever, while the other two ran the usual clinical history of severe acute perimetritis.

The next step of the operation consists of stuffing the endometrium very compactly with iodoform gauze. This is preceded or not, as the operator may choose, by an intra-uterine aseptic-douche. Of late years I have not considered this step necessary. The curetting is always accompanied by a very free hemorrhage, and as the detritus of the curetting is removed from the uterus by the instrument and the intra-uterine cavity is bathed with an aseptic hemorrhage the necessity for intra-uterine douching does not seem to be urgent. Formerly when intra-uterine douches were always used, I had the misfortune to set up a perimetritis by wash-

ing out through a patulous tube some infectious material into the pelvis.

A small intra-cervical cylindrical speculum facilitates packing the endometrium with gauze. With its use the packing can be accomplished quickly and without the gauze sticking within the cervical canal, as often occurs. The packing serves three purposes, namely, hæmostasis, drainage and divulsion of the internal os. It should be permitted to remain seventy-two hours before removing. It can then be taken away and a second packing used. Upon the removal of the vulsella the cervix should be covered with some aseptic dusting powder and the vagina packed with gauze.

It is better to catheterize the patient until the gauze is removed, than to run the risk of the possibility of infection after voluntary urination. After the removal of the uterine and vaginal tamponades, the patient should receive vaginal aseptic douches night and morning for several days. Lying in bed need not be prolonged beyond seven days. Antiseptically performed, this operation is not followed by any rise of temperature or constitutional disturbance.

It is well to use two or three times each week for a month or two after the operation, local treatments of iodized phenol, followed each time by the use of a generous wool tampon soaked in glycerin, introduced while the patient is in the genu-pectoral position.

THE TREATMENT of all pelvic inflammations ought always to include free daily alvine injections and renal stimulation. For the former a daily dose of cascara, or compound glycyrrhiza powder, or Rufus pill, or any other approved laxative, at bed-time, can be used. To stimulate the kidneys, the old fashioned combination of acetate of potash and tincture of digitalis, ten grains and ten minims, respectively, or of the effervescing granular salts of lithia can be used. Additionally we can use to great advantage a tonic. These three therapeutical points being covered, it is well to insist upon daily fresh air exercise progressively increased *pari passu* with the return of the general nutritional and hæmic integrity. Patients much degraded in general health by chronic metritis with its attendant sepsis, mild in some cases and severe in others, require from two to six or eight months of an after treatment, herein outlined, to regain a good degree of strength and endurance.

## Book Notices.

**SEXUAL NEURASTHENIA (NERVOUS EXHAUSTION):** Its Hygiene, Causes, Symptoms and Treatment. With a chapter on diet for the nervous. By **GEORGE M. BEARD, A.M., M.D.** Edited, with notes and additions, by **A. D. ROCKWELL, A.M., M.D.** Fourth edition, with formulas. Cloth, 8vo., pp. 294. New York: E. B. TREAT, 1894. (Price, \$2.75).

The reputation which this work has attained both in this country and abroad is such as to commend it to the attention of the profession, and a fourth revision having been called for shows that it is duly appreciated. No material changes have been effected by the editor, except the addition of a chapter on sexual erethism. To Dr. Beard, the medical profession is indebted for the name of the disease which is now all too common, and with the increasing number affected with nervous exhaustion, the demand for the work will rapidly increase.

The mechanical execution is all that could be desired; and the size of the book is such as to make it convenient for reading, while a copious index enables the consultant to refer to its varied contents with little loss of time.

**NOTES ON THE NEWER REMEDIES:** Their Therapeutic Applications and Modes of Administration. By **DAVID CERNA, M.D., Ph.D.,** Demonstrator of Physiology and Lecturer on the History of Medicine in the Medical Department of the University of Texas, etc., etc. Cloth, 12mo., pp. 253. Second edition, enlarged and revised. Philadelphia: W. B. SAUNDERS, 1895. (Price, \$1.25).

A second edition of this work having been called for, the author has taken the opportunity of making some correction in the first edition, enlarging its scope, and eliminating some of those remedies which could not be classed under the head of new drugs. In addition to this, a therapeutic index has been incorporated in the book, and in its present shape, it will no doubt prove far more acceptable to the

profession than as first issued. The rapid changes in medical affairs makes it important to have frequent revisions, and a small volume gotten up in an inexpensive manner, without the disadvantages of extended preliminary disquisitions, will doubtless prove a timely addition to therapeutic literature. In the main, this work is acceptable, although the size of the book precludes any elaborate presentation even of the more important topics. Take, for example, hydrogen dioxide, although it has been now before the medical profession commercially for nearly fifteen years, and can, therefore, scarcely be classed as a new remedy, less than half a page is given to its consideration. The subject of nuclein is dismissed within a few lines, our author seemingly being familiar only with the report that it was used by Prof. Germain Sée with success in the treatment of pneumonia and pleurisy.

**DOSE-BOOK AND MANUAL OF PRESCRIPTION-WRITING:** With a list of the official drugs and preparations, and also many of the newer remedies now frequently used, with their doses. By **E. Q. THORNTON, M.D., Ph.G.,** Demonstrator of Therapeutics, Jefferson Medical College, Philadelphia. Cloth, 8 vo., pp. 334. Philadelphia: W. B. Saunders, 1895. (Price, \$1.25.)

The title-page of this work indicates fully its scope, and an examination of the contents shows that it is in line with the most recent teachings upon this important subject. Although the practice of writing prescriptions is now less common than formerly, it is well to have the rising generation of physicians fully prepared for the work. In view of the recent recommendations of the Pharmacopeia that the metric system be adopted, a practical knowledge of the contents of such a book becomes highly important for those who expect to take the examinations of the different licensing boards. It contains a list of contents and a very complete index, and being the most recent work of the kind, there is no doubt but there will be an active demand for it, not

only among the students of the "Jefferson," but in many other institutions of the kind throughout the country.

In point of mechanical execution, it is highly creditable to the publisher, although all of Mr. Saunders' books are of the same high grade.

**TRANSACTIONS OF THE COLORADO STATE MEDICAL SOCIETY.** Twenty-fourth Annual Convention. Cloth, 8vo., pp. 486. Denver: Press of A. J. LUDITT, 1894. (Printed for the Society).

For a medical society, situated on the frontier, the Transactions of this organization present a substantial appearance. A large number of excellent papers, and a good list of members, attest the interest manifested by the physicians of Colorado. It will not be considered invidious to refer particularly to two of these papers, since they show that these physicians are rapidly falling into line with the active workers in the sea-board cities. The contribution of Dr. W. A. Jayne, of Denver, is certainly a most timely consideration of an important subject, namely, the clinical examination of the blood. Considering the great number of invalids who seek the advantages of Colorado climate, the paper of Dr. Charles Denison, of Denver, on food for chronic pulmonary invalids, is probably of equal value, since it deals in a practical manner with a topic that is too frequently overlooked in the treatment of this class of cases.

The volume is handsomely printed on good paper, and substantially bound, and is creditable alike to the members and the printer; and we cannot resist the temptation to congratulate the society on the substantial progress it has made, as indicated by the appearance of its Transactions.

**ANTISEPSIS AND ANTISEPTICS.** By C. M. BUCHANAN, M. D., Professor of Chemistry, Toxicology and Metallurgy, National University, Washington, D. C.; with an Introduction by Professor AUGUSTUS C. BERNAYS, of St. Louis. The Terhune Co.: Newark, N. J., 1895. (Price, \$1.25.)

This little volume of 350 pages is made up of XI chapters, dealing in due order with the history of antiseptics from the ancient Egyptians and Chinese to this *fin de siècle* period of germs, bacilli, cultures, etc. The introductory chapters are interesting reading because of the historical notes, which are entertainingly strung together. There are a few chapters of theory, reciting well-known facts and views, but nothing new. Chapter VII, from page 81 to 221, is the most practical in the book; it describes briefly all antiseptic agents now in use—or offered by enterprising manufacturers for use. A frontis-piece contains photo-engravings of Profs. Lister, Pasteur, Koch, Senn and Sternberg; there are also a few half-tone engravings—poorly executed—showing various historical and modern clinics. A very good index of subjects prefaces the text, and an index of authors is appended.

The text, wholly or in part, appeared in installments in the St. Louis *Medical Review* during 1894; it makes a neat little volume of some interest, but it is too palpably an advertisement for a proprietary antiseptic to merit more than passing notice, and the wonder is how the author and patron come to lend their names to the scheme.

Mr. R. W. GARDNER, 158 William Street, New York, has favored us with a little volume of 200 pages, devoted to Syrups of Hypophosphites and Hydriodic Acid. The contents include introductory remarks, a very complete and serviceable therapeutic index, and a collection of clinical reports—such as one would be referred to in a condensed monograph or Dispensatory article. Physicians who employ these syrups in their practice should write for a copy of the book; there is much information thus made available which may prove new and instructive.

A Pocket Visiting List for March, from the Medical Novelty Co., New York. The publishers issue a new List each month; sample copy can be had by our readers by sending request with 2c. stamp.

## PUBLICATIONS RECEIVED.

The Complete Method of Operation in Cases of Cancer of the Breast. By Dr. A. C. BERNAYS, of St. Louis, Mo. Reprint, 1895.

Intestinal Anastomosis; with Report of a Case. By F. H. WIGGIN, M.D., of New York. Reprint, 1895.

Hygiene of the Anus and Contiguous Parts. By J. R. PENNINGTON, M.D., of Chicago. Reprint, 1895.

The Treatment of Inoperable Malignant Tumors with the Toxins of Erysipelas and Bacillus Prodigiosus. By WILLIAM B. COLEY, M.D., of New York. Reprint, 1895.

A Case of Fracture of the Thyroid Cartilage—Recovery without Tracheotomy. By T. B. EASTMAN, M.D., of Indianapolis. Reprint, 1895.

A Treatise on the Wine of Cod Liver Oil with Peptonate of Iron. By F. STEARNS & Co., of Detroit, Mich. 1895.

Ophthalmia Neonatorum. By C. A. VEASEY, M.D., of Philadelphia. Reprint, 1895.

Subvoluton—A New Pterygium Operation. By BOERNE BETTMAN, M.D., of Chicago. Reprint, 1895.—Same author: Ripening of Immature Cataract by Direct Trituration. Reprint, 1895.

Post-Nasal Hypertrophy and its Relation to Hay Fever and other Diseases. By W. H. WEAVER, M.D., of Chicago, Ills. Reprint, 1895.

School of Industrial Art of the Pennsylvania Museum. Circular of the School of Applied Art: Eighteenth Season. Philadelphia, 1894.

Second Annual Report of the Women's Directory of Philadelphia. 1895.

Three Cases of Strabismus with Anomalous Diplopia—an original and acquired fixation spot in the same eye. By CHARLES HERMAN THOMAS, M.D., of Philadelphia. Reprint, 1894.

Muscular Asthenopia and its Treatment by Graduated Tenotomy. By CHARLES HERMAN THOMAS, M.D., of Philadelphia. Reprint, 1894.

The Pathology, Symptomatology and Treatment of Hemorrhoids, Simple and Complicated. By THOMAS H. MANLEY, M.D., of New York. Reprint, 1893.

Contusion of the Abdomen with Rupture of the Thoracic Duct. By THOMAS H. MANLEY, M.D., of New York. Reprint, 1894.

Tuberculosis in the Ano-Rectal Region. By THOMAS H. MANLEY, M.D., of New York.\* Reprint, 1894.

Rest in Bed as a Resource in the Treatment of Chronic Non-suppurative Catarrh of the Middle Ear. By A. BRITTON DEYNARD, M.D., of New York. Reprint, no date.

The Work of the Gynecological Clinic of the Hospital of the University of Pennsylvania, 1893 to 1894. By CHARLES B. PENROSE, M.D., of Philadelphia. Reprint, 1894.

Notes on Tinea Circinata, Tinea Sycosis and Tinea Tonsurans. By J. ABBOTT CANTRELL, M.D., of Philadelphia. Reprint, 1892.

Thyroid Feeding in Psoriasis. By J. ABBOTT CANTRELL, M.D., of Philadelphia. Reprint, 1894.

## Miscellany.

MEDICAL EXAMINATIONS IN NEW YORK.—Examinations for license to practise medicine in this State will be held in 1895 as follows.

April 2-5, May 14-17, June 18-21,  
September 24-27, November 25-27.

The examinations are held simultaneously at New York, Albany, Syracuse, Buffalo. Each candidate is notified as to exact place.

## DAILY PROGRAM.

	Morning	Afternoon
	9:15—12:15	1:15—4:15
Tuesday	Anatomy	Physiology & Hygiene
Wednesday	Chemistry	Surgery
Thursday	Obstetrics	Pathology & Diagnosis
Friday	Therapeutics.	

For further information, address "Examinations Department," University of the State of New York, James Russell Parsons, Jr., Director.

MEDICAL BILL FAILS IN KANSAS.—A bill to regulate medical practice was recently before the Kansas State Legislature; the bill provided, that no person shall practice medicine in this State unless such person is of good moral character and is a graduate of a legally chartered medical institution of good repute, or has been practicing medicine as a means of livelihood continuously in this State prior to the taking effect of the act." The bill was opposed by the Populists.

In the House Mr. Winters (Pop., Kiowa) said: "We western people can't support your plug hat doctors. We've got a lot of old women who are better than any of them." The bill passed the House, but it was defeated in the Senate.

THE LEGISLATURE of New York will probably pass an act in a few days authorizing the N. Y. Board of Health to manufacture and sell "Diphtheria Antitoxine." If the functions of the Board are to be enlarged in this direction, and a municipal department is to compete with citizens who are in business to make and supply drugs and medicinal agents, why not empower it to manufacture and sell all kinds of drugs; and later on, butcher shops, groceries, bakeries, etc., might be added to the outfit. There is nothing illogical or preposterous in the proposition—at least not from the present Boards' tenets.

THE NEW YORK BOTANIC GARDEN is nearing realization. Of the necessary \$250,000, which the incorporators must raise before work can be begun, all but \$45,000 has been subscribed. The bill for this Botanic Garden, Museum and Arboretum was passed in 1891.

The provisions of the bill are that \$250,000 must be raised by the incorporators within five years. As soon as this sum is raised the city is required to set aside 250 acres of land in Bronx Park, which is to be selected by the incorporators, who will issue bonds for \$500,000. Bronx Park is a most picturesque place, and is conveniently reached from the city.

NOT IN THEIR SET.—"You must be very careful to have nothing to do with those bacilli," said a germ mamma to her small daughter.

"Why, mamma?"

"Because we belong to the very exclusive artificially propagated bacilli, while they can lay no claim whatever to culture."—N. Y. Sun.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. III.

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No. 10.

## Original Articles.

### *A CONTRIBUTION TO THE STUDY OF CELLULAR THERAPY, AND THE SIGNIFICANCE AND MANAGEMENT OF FEVER IN CHILDREN. \**

By WILLIAM JACOBSON, B.S., M.D.

Attending Physician to Children's Clinic, Demilt Dispensary, etc., New York.

The rapid strides that have marked the pathology of fever have brought before us various theories regarding its origin, its causes and its significance. The limit of this paper does not permit an account of them. Prof. Bouchard, of Paris says: "The pathology of fever is concerned with what the morbid changes present are, the order in which these occur, and the relationship to one another; on the other hand, the pathogeny reveals the origin and development of fever, and the mode of action of its causes."

As one considers the pathogeny of fever of the most importance, since by its study we may understand how the first changes are brought about to produce the condition known to us as fever, I will state some of the most important factors concerning it. Again, understanding the pathogeny of fever, we can then make use of such remedies as will be rationally directed toward it.

All heat is produced by motion or activity. Be that motion in the plant or in the animal, it is that which constitutes life. The ultimate unit of life is the cell. The latter possesses sufficient individuality to

have a life history of its own. Each cell goes through the same cycle of changes as the whole organism. In health, its vital powers are those of growth, nutrition and reproduction. It accomplishes this through motion, and by the latter it evolves heat. Its movements are modified by certain conditions. Where these are normal, we have a natural amount of heat production. However, under certain accidental circumstances, the cell is compelled to act more energetically, and with its increased energy, there results an augmented heat production, which in the individual is manifested as fever.

In children, we find cellular activity very pronounced. Not only their physical organs, but also their minds are constantly undergoing change and development. Though very active, the cells are not very stable, and any slight impetus will affect them. As a consequence, children are very apt to get feverish, and more readily will a higher degree of temperature be attained in them than in adults.

Now, what prompts the cell to its extra activity? It is the principle of self-preservation against its enemies. And what are its enemies? They are the toxins which, having gained entrance into the circulation, attack the tissues and cells, irritating them and seeking to demolish them. The cells defend themselves. If their strength is reinforced by others, which also are supplied with ammunition, *i. e.*, with a natural anti-toxine, there results a struggle for existence which ends in the survival of the fittest. But this combat is not ended until there has been considerable loss, this loss being represented by the cell-metabolism and degeneration which result, and which are

\* Read before the Society for Medical Progress of the West Side German Clinic, April 6, 1895, and contributed exclusively to the AMERICAN THERAPIST.

**the pathological changes.** The battle has been fought and its amount of energy is represented by the heat generated, which heat is conveniently measured as so much fever. Moreover, this amount is dependent upon not only the quantity and the quality of the toxine, but also the resistance of the cell. Hence, when this resistance, which is dependent upon the stability, is less, as in children, certain toxins have a predilection for them. Consequently, the toxins of infectious diseases are peculiarly liable to attack children. When the disease of fever has been absent, aborted, or modified we must attribute the change to the power of resistance in the cell. The "fit soil" of Koch, is the one in which this resistance has been weakened.

As long as the activity of the cell is maintained, the cell will still respond; but when it has been over-stimulated, or rather, extremely irritated, it no longer can react; it is, as it were, paralyzed. Exhausted, its energy is gone, its motility leaves it, and heat being less generated, we get what it is called a sub-normal temperature. This is illustrated in the exhaustive stages of various diseases.

Toxines which find their way into the circulation, so as to affect the cells proper, originate from the products resulting from the life and growth of micro-organisms, from the toxic matters in the air we breathe, the water we drink, and the food we eat, from the processes of fermentation that take place in the alimentary tract (these processes being due to the nutrition and life of organisms which are constantly producing toxins), from the microbes of contagions, of infections, of pyemia, septicemia and the like.

We are constantly surrounded by these enemies, which seek to kill us, and when the cells become irritated by any of these toxins, or by the introduction into the circulation of organic substances, whether normal or the result of pathological processes, we have fever. The latter has been proven by experiments with either

putrid organic substances, or the various alkaloids of these, or fresh organic matter, or extracts from the muscles, spleen, kidney, etc., of healthy individuals, or certain soluble ferments of animal origin, or the products of the breaking down of corpuscles, or the products of bacterial secretion, or the body proteins of bacteria.

Having seen that fever is caused by the activity of the cells, and that the stimulation to extra action is due to their defense from substances which are threatening their stability, we conclude that fever is the result of a conservative action of nature. Consequently, to interfere, as to attempt to subdue it directly, simply for the sake of lowering the temperature, is against the laws of nature. The question then is, What shall we do? Its answer is, remove the cause, the origin of the fever; remove those foreign substances, the toxins, if you can. Antiseptics, disinfectants, germicides have their value in very many cases. Especially in children where gastro-intestinal troubles often give rise to increased temperature, they will find their use. But in contagious diseases, these will not suffice. Something is wanted which will neutralize the poison, kill the bacillus or other microbe by its own toxine, and rid them from the system; when they disappear, the cell will cease its extra activity. What is this powerful something which will do this? It is nuclein, nature's antitoxine, found in the cell, the ultimate unit of the animal organism. To it the cell owes its resisting power. Its action is as follows: If present in sufficient quantities in the cell, the latter offers enough resistance to prevent the micro-organism or its toxine from destroying it. As a consequence, the microbe, from lack of nourishment and from its own toxine, dies. The toxic products are neutralized by the nuclein; the cell now thrives without further molestation. It is the toxine that does the work of destruction; for as soon as the cell has been run down, lost its resistance and consequent immunity, *i. e.*, its sufficient amount of

nuclein, it is successfully attacked, and the micro-organism devours its nutritive substance.

Let us illustrate this more fully. The bacillus diphtheriæ enters the tonsils through an abrasion, and is carried into the circulation. The healthy child has been endowed by nature with very strong vital cells, containing an abundance of nuclein. The bacillus gets its nourishment from the normal heat produced by the normal cellular activity, and is surrounded by oxygen and water. It need not attack the cell, therefore, as the food is within easy reach. But, it soon secretes the products of its life, the toxins. The latter poisons attack the cells and irritate them, compelling them to protect themselves. As the toxins accumulate, increased activity of the cells, *vis.* fever, takes place. The cells proliferate and the circulation is increased in the parts. There is an afflux of the polynuclear white blood-corpuscles. The latter carry more nuclein to the cells, reinforcing them, and enabling all toxins to be neutralized. They also, through the power of nuclein, take hold of the micro-organisms, enveloping and imprisoning them. These micro-organisms, thus deprived of their nutrition, succumb and are carried off. The powerful phagocyte is supplied with enough nuclein to neutralize any remaining toxine.

Now, if there is not a sufficient amount of nuclein in the cells, blood-serum and blood-corpuscles, we can see that the story will be reversed, and as the toxins will get the better of the tissues, the fever will continue, and may ultimately lead to death.

Knowing then, that in fever we have a condition of toxemia, we, as physicians, must assist nature to overcome this condition. In the contagious diseases, as there is the most danger to life, should we especially help, by furnishing additional nuclein to the system. We can accomplish this by injecting the requisite quantity into the circulation. As it commences

to act upon the system, there is noticed, due to the stimulation of cellular activity, a rise of temperature; this is followed by an abrupt fall; for, as the cells are furnished with additional, natural antitoxine, toxemia is lessened. Removing the poison, it remedies the fever, and the disease is rapidly recovered from.

I have used nuclein in contagious fevers. My results in *diphtheria*, *scarlatina* and *measles* have been excellent. What it promises in other fevers, I am not prepared to say, as these are under investigation; but nuclein has a great future in store. My experience in the clinical study of cellular therapy has been strengthened by the additional observations on many cases in association with Dr. J. Mount Bleyer, of this city, who was the first to advocate nuclein as the defensive proteid in diphtheria. The first convincing experiments in children have been made by us. I propose shortly to report a large clinical study of fever cases in which nuclein has been used, and I must say that its clinical effect corresponds exactly to what I have above stated. So powerful is its action, that I have succeeded by introducing it into the system of those exposed to contagion, in warding the latter off. This, again, proves that it is *the* antitoxine, and that it is in reality what produces immunity. It has also the power of aborting the disease.

Nuclein is represented chemically as:  $C_{12}H_{14}P_2O_{11}$ . It is very rich in phosphorous, and microscopically presents the appearance of cell blastoma, receiving carmine and eosine like all cellular substances. Its origin is in the following manner: The absorptive products of digestion are surrendered to the leucocyte; the latter from this nutritive material develops nuclein by the principle resident in the nucleus, nucleolus, etc. The products of the inorganic world are thus vitalized; the leucocyte furnishes nuclein to the various cells of the body.

The details in the administration of nuclein in fever, its doses, its indications and



its contra-indications, will be illustrated by the clinical report referred to above; the reason for such administration will then be manifest.

Before closing this paper, you will permit me, gentlemen, to state that the value of the French and German antitoxine in diphtheria is due solely to the nuclein which it contains, as it is made from the blood-serum which contains nuclein. Again, animal extracts all contain nuclein, and their action is one of stimulation. All these, when introduced into the circulation, produce fever, as a consequence of causing greater cellular activity. When the substance is an unattenuated toxine, pure and simple, and is introduced into the body, it also stimulates the cell; but by artificially introducing this toxine into the circulation, when toxines are already present, we must still further poison the system. The bad results which often follow the injection of the French and German antitoxine are thus explained. The good results are fortunately due to the presence of nuclein, though the scientists who have discovered the antitoxine, have based the latter on a different theory.

Vaccination does not protect because a poison has been introduced, but because something that will assist the cells to react against the disease has been introduced. M. Ferran did not employ the microbe for his vaccinations; the immunity was produced by the broth into which the microbes had been introduced. Fodor showed that the blood was able to destroy bacilli. Buchner has shown that the injection of proteid, foreign to an animal organism, increased the anti-biotic power of the blood. Rumpf obtained distinct therapeutic results in typhoid fever by the injection of the dead bacillus of blue pus. Klein also found many dead bacteria protection against cholera. Buchner moreover settled that the direct antitoxine antidotal action of the antitoxine neither took place in vitro, nor in animal organism, as was maintained at first by Behring. The two substances, antitoxine and toxine,

existed side by side, and no neutralization occurred. Antitoxine acted as a stimulus to the chemical process of the cells, and if these cells be enfeebled in any way, their vitality lowered, the stimulation failed to rouse them, and the antitoxine was of no avail. We see, therefore, that antitoxine, like the substances Buchner, Rumpf and Klein used, acts simply as a stimulant to increase the production of nuclein.

Just as tuberculin has failed because it contains toxines, so will the French and German antitoxine meet with unfavorable results.

That nuclein is the real therapeutic agent in diphtheria is proven by the smaller dose required, by the general condition of the patient being very much more rapidly improved, by the complications being rare, by the immediate lowering of the temperature after the initial rise, by the decrease of pulse-rate, and by the strengthening effect on both mind as well as body. It acts similarly in measles and scarlatina, rapidly bringing on the rash and shortening the duration and the course of the disease.

To conclude: natural immunity is caused by enough nuclein in the body; acquired immunity is brought about by causing an increased production of nuclein, and by directly introducing nuclein into the body.

152 East 86th Street, New York.

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THE TREATMENT OF DIPHTHERIA.—Dr. L. Emmett Holt, in *Archives of Pediatrics*, concludes from his wide experience as follows:

1. Germicidal treatment, preferable by the use of the strong hydrochloric acid, used early to be effectual; especially valuable in cases beginning on the tonsils.
2. Local cleanliness by the use of a weak antiseptic solution in the pharynx.
3. Nasal syringing with the same solutions in every case where there is nasal discharge.
4. Alcoholic stimulants begun as soon as the first systematic effect of the poison are seen, and in very severe cases pushed to the point of tolerance.
5. Calomel fumigations as soon as laryngeal symptoms appear.
6. Intubation in laryngeal cases not relieved by fumigations.

## THE TREATMENT OF FUNCTIONAL DYSPEPSIA.\*

By J. M. G. CARTER, M.A., M.D., Sc.D., Ph.D.,

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Functional dyspepsia, atonic dyspepsia and nervous dyspepsia, as used in this article, are terms which refer to those chronic derangements of digestion not due to any known or discoverable organic lesion of the digestive apparatus, especially the stomach. I do not refer here to dyspepsias due to cancer, ulcer, cicatrices, permanent dilatation, hyperemia of the stomach, subacute and chronic gastritis. There still remains a large field for investigation after all these limitations have been drawn—not so large, to be sure, as it was considered some years ago, but large enough to require much time for its study, and much patient care and skill in its treatment. When an *organic lesion* of the stomach is known to exist, indications for treatment are usually well marked. In *atonic* or *nervous dyspepsia*, however, a great deal of time and skill may be exhausted in search for the proper treatment in particular cases. Business and professional men, those of sedentary occupations, the indolent and rich, as well as those who spend too little time at their meals are subjects of these derangements.

Functional dyspepsia is of frequent occurrence in infants and children. The colicky babies are generally dyspeptics. Children who frequently have a run of fever for a day or two or a few days, with or without vomiting, are in many instances sufferers from dyspepsia. Infants who habitually vomit curdled milk, raise gas from the stomach, twitch in their sleep, or

wake in a fright, are often subjects of functional dyspepsia. Children who have "night terrors," bad dreams, restless sleep, diarrhea alternating with constipation, those who are afflicted with persistent constipation, are in many cases brought into these states by dyspepsia. Obstinate summer diarrheas are generally due to dyspepsia, accompanied often by an atonic condition of the muscularis of the stomach. This condition, resulting from various causes, may lead to dilatation, a frequent occurrence in dyspepsia of children.

*Treatment.* The treatment of functional dyspepsia must as nearly as possible meet the following indications:

- (1) Relieve urgent symptoms;
- (2) remove the cause;
- (3) assist the stomach to perform its functions;
- (4) remove constipation or other evil accompaniments;
- (5) tone up the general system.

Pain, vomiting, gaseous distention, palpitation, and dyspnea are such distressing symptoms that their relief immediately is imperative. Sick headache is one of the most common forms of pain. This can usually be relieved by emptying the stomach at once by emesis or with the stomach-tube, and administering a dose of epsom salts or a Seidlitz powder. If the headache is produced by the absorption of a greater quantity of peptones than the blood is able to transform immediately, these procedures will be simply palliative. Pain in the stomach caused by the presence of the gases of fermentation or putrefaction can generally be relieved by the use of antiseptics or alkalies, as peppermint, carbolic acid, bicarbonate of soda or potash, or lime water. The carminatives and antispasmodics, as anise, benzoic acid and camphor, often give relief; and gelsemium and belladonna may have a good sedative effect. Chloroform and opium may be required. If the alkalies already mentioned are not sufficient to control vomiting, bismuth, oxalate of cerium, charcoal, ice, ice cream, or hot water may be used. If the alkali treatment, hot water, antiseptics and car-

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minatives do not relieve the gaseous distention, use the stomach-tube. The heart and circulation become so much disturbed at times that digitalis, caffeine, strophanthus or convalaria may be needed to stop the palpitation. These remedies will generally relieve dyspnea if the removal of the gaseous distention does not accomplish this result at once.

The second indication—the removal of the cause—is a matter of vital importance, and is often extremely difficult if not impossible to accomplish. For the purposes of treatment the causes may be divided into (1) dietetic; (2) local; (3) general or systematic; (4) reflex or nervous; and the treatment must be determined by the known cause. A dyspepsia which results from dietetic errors may be benefited, frequently cured, by a selection of such kinds of food as are found upon trial not to produce distress after eating, and by the strict avoidance of every article of diet which is known to cause trouble. This regulation must be established in each case separately. No hard and fast rule can be fixed which will meet the necessities of all classes of cases. If the starches and sugars cause distress or are not properly digested, which may be determined by testing the stomach contents an hour after a test-meal with Lugol's solution, see that the mastication of these foods is properly accomplished in order that the ptyalin may have a chance to do its work; if they still give trouble, prescribe diastase, papain, pancreatin and peptenzyme to assist in the proper transformation of the food into glucose and grape sugar. Give antiseptics, as peppermint, carbolic acid, charcoal; give alkalies, as bicarbonate of soda, magnesia, lime water, bismuth; give sedatives, as gelsemium, camphorated tincture of opium, and chlorodyne; these will stop the fermentation, allay the irritability of the stomach, remove the gas and quiet the distress. A judicious choice of remedies such as those just suggested, with proper directions in regard to eating, will relieve most cases. Many patients

can eat one variety of starchy foods while another will produce distress. Others can eat wheat bread but cannot digest corn bread. Some can eat white potatoes but cannot eat the yam or sweet potatoe without indigestion; and so it is with other varieties of starches as well as with sugars. Hence the necessity for individual selection in many instances. If the albuminoids are the cause of the trouble, the fault may rest with the gastric secretions. These may be increased by giving the mineral acids, the aromatic sulphuric and hydrochloric being the best. These remedies may be given immediately before meals, or two or three hours after meals. They may be given with pepsin. The HCl and pepsin may cause an artificial digestion. But for simple stimulation, I prefer the aromatic sulphuric acid alone, or with the vegetable stomachics. The aromatic sulphuric acid assists in the oxidation of proteid derivatives and the formation of urea.

If stomach analysis shows hydrochloric acid in excess, then an alkaline course of treatment may prove serviceable, temporarily, and attention must be given to the neurosis which causes the hyperacidity. Putrefactive changes must be met with antiseptics; irritability and pain with sedatives and anodynes. Papain, pepsin and peptenzyme are often valuable to assist in the digestion of this class of foods. If the gastric juice taken from the stomach will not digest boiled white of egg in three or four hours when kept at a temperature of 100° F., it is evident that the HCl and pepsin are necessary to complete the natural process in the stomach, and they must be prescribed as needed.

In striving to regulate the food in cases of dyspepsia due to dietetic errors, especially when it seems desirable to reduce the amount of food used, care must be taken to direct a sufficiently abundant diet. The nourishment must be ample to sustain the vital functions. It often happens that one of the first duties of the physician is to prescribe liberal nourishment. Many dyspeptics finding that certain foods which

are especially palatable to them regularly give them distress, not only avoid eating the disturbing articles, but limit themselves to such small quantities of other kinds of food that the blood becomes impoverished, and all the tissues of the body suffer. Under such circumstances, it is reasonable to believe that the most essential element in the treatment is to prescribe an abundance of easily digested yet nourishing food to be taken at regular intervals, partially predigested in many cases.

When the derangement seems to be in the stomach, that is, when the cause is local, the treatment seems to be directed to the secretions and the mucous membrane or muscular coat of the viscus. The stomach may be abused by condiments, alcohol, over-eating, etc., and impairment of digestive power result. Dyspepsia following such indiscretions must be relieved by aiding the organ in its work. The dyspepsias resulting from excessive use of condiments and alcohol eventually terminate in chronic gastritis, and must be treated as such. In the earlier stages, however, such derangements can be relieved by antiseptics, anodynes, papain, and occasionally alkalies to relieve the gaseous distention. If these causes exist in connection with dilatation of the stomach due to overeating and drinking, the treatment must include such tonic measures as the use of nux vomica, quinine, iron, arsenic, vegetable bitters or stomachics; pepsin, hydrochloric or other mineral acid, pancreatin and peptenzyme should be given, to which papain may be added. Gelsemium and carbolic acid, to which chlorodyne or camphorated tincture of opium can be added, often act well in these cases. If constipation is present, and the sensitiveness of the stomach is not marked, it will be well not to use the opium. Gelsemium often has an excellent sedative effect upon the terminal nerves of the stomach. These means of corrective treatment when the cause of the dyspepsia is local, or in the stomach, if persistently carried out, will give relief,

and often produce a cure. Lavage is one of the most important means of treatment in this as in some other forms of dyspepsia, especially if dilatation occur or fermentations be frequent.

Among systematic causes of dyspepsia, neurasthenic conditions and anemia hold a chief place. It is clear that the general health must be restored in such cases. Rest, massage, electricity, baths and general tonics, with perhaps a change of scene, surf bathing, sea air, and general restorative treatment will be required in the cases of nervous trouble; while iron, hemoglobin, rich nourishing diet, pure air, moderate exercise, and strict regularity in functional activity and sleep will meet the indications in the anemic state. The immediate disturbances of the stomach must be relieved by such means as are found to be useful in other varieties of dyspepsia or indigestion.

It not infrequently occurs in these cases that the weakened condition of the stomach, its loss of elasticity or the power to resume its normal size after prolonged distention, permits dilatation to occur, with excessive fermentation and eructation of gas. Lavage is the best treatment in such cases. The use of simple warm water may be sufficient, but often some weak antiseptic solution will be required, as that of  $\frac{1}{2}$  to 1 per cent. solution of boric or salicylic acid.

Certain cases occur which are due to a general disturbance of the system, especially resulting from fatigue of digestive organs, which are to be treated by removing the cause if possible; when the cause cannot be removed, careful regulation of food and time of eating is required. This class of cases may be illustrated by the following brief reference to two patients in my own practice. The first was a manufacturer and dealer of Chicago. He became afflicted with headache and peculiar nervous symptoms, confusion of thought, disturbed sleep, anxiety and inability to concentrate his mind upon his work. He consulted his physician, but received no help. His

physician, believing his trouble to be of nervous origin, advised him to consult a neurologist. This he did, and was advised to give up the responsibility of his business and travel. Eventually he did so and spent nearly a year in the search of health, in the meantime growing rather worse than better. At this time he came to me. I made the diagnosis of dyspepsia due to neglect of regularity in meals. He had been in the habit of neglecting meals altogether, or taking them at irregular hours, eating heartily and hastily and going to work immediately after eating. The treatment justified the diagnosis. He was advised to return to work, stop his work at least half an hour before meals, and not to begin work again for an hour after meals. Remedies were given to assist digestion, and he grew better from week to week, until now he is entirely well and has not needed treatment for three years.

The second case was a speculator and wheat dealer of Chicago. He was in the habit of going from his exciting business directly to a dining room and eating heartily and beginning work immediately after his dinners. After years of such work he began to suffer some confusion of thought, discovered that he was not so successful in his deals, had headache, became nervous, restless, anxious, unable to sleep. He consulted a neurologist and was advised to retire from business or at least to leave it for a while. At length he felt that he must follow his physician's advice. After he had left his business some months and had grown no better, but rather worse, he consulted me. The dull headache, disturbed vision, confusion of thought, nervous condition, insomnia, hearty meals, etc. (although like the former case, he was sure there could be no trouble in the stomach), convinced me that his trouble was nervous dyspepsia, or functional dyspepsia, caused by his habits of work and eating. I advised him to resume his work, take a bowl of milk and crackers, or a bowl of oyster soup, or a

cup of beef tea at one o'clock—half an hour after stopping close thought—and then to wait half an hour before beginning his work again. He followed the advice, and is still working and feeling well. His nervous symptoms left him in a short time. He required very little other treatment; a preparation to assist his digestion was given for a few weeks. His large meal is now taken one or two hours after active work ceases.

The cases said to be of nervous origin are due to some reflex disturbance, and may be illustrated by referring to the gastric disorders of pregnancy, ovarian and uterine disease, certain brain and spinal disorders, and powerful emotions. The curative treatment in all such cases rests in the removal of the cause. Palliative treatment is like that of acute derangements of the stomach from other causes—lime water, bismuth, oxalate of cerium, hot or cold drinks, ice, etc. The pepsin preparations, hydrochloric acid and other acids frequently give temporary relief.

The third indication in the treatment of dyspepsia is to assist the stomach in the performance of its functions. The functions of the stomach, it must be remembered, are secretion, motion and absorption. Absorption is somewhat limited and evidently depends upon a healthy condition of the organ. Motion likewise depends upon the condition of the stomach as related to normal, and has reference chiefly to peristalsis and antiperistalsis. Any effort which may be made to restore the system in general and the secretions of the stomach in particular, therefore, will aid in securing normal absorption and motion. The remaining function, secretion, becomes then the element of greatest importance. If hydrochloric acid is deficient, it must be increased by stimulating the stomach or by administering the acid.

The presence of HCl in the stomach when given by the mouth stimulates the secretion of the viscus in the same manner as do other mineral acids. Clinical

experience has caused me to prefer aromatic sulphuric acid for this purpose. If acids are not well borne, the vegetable bitter tonics often yield excellent results. If the gastric juice will not artificially digest albumen after these remedies have been given, and before if for any reason it is thought best, pepsin in some form may be given. If pepsinogen is secreted in sufficient quantity, the presence of hydrochloric acid will be alone adequate to produce enough pepsin in the stomach to carry on digestion for ordinary amounts of albuminoid food. Combinations of ptyalin, pepsin and pancreatin are often very valuable. Peptenzyme, a combination of the intestinal digestive secretions with those already named, may be useful. In anemic conditions it is necessary to restore the blood to a healthy composition before normal secretions can be secured.

The rest treatment is frequently necessary in neurasthenic cases. The rest treatment for the stomach may include the patient's rest in bed, and this is frequently necessary. Sometimes it will be sufficient to order carefully selected, easily digested food, given in definite quantities at regular intervals; but cases will often occur where an absolute rest must be given to the stomach for a few days and nourishment given by the rectum. Drink may be administered by the stomach even when food cannot be taken. Such cases are usually in a depraved condition and every effort must be made to restore the system to health. Hence it is imperative that abundant nourishment be administered in some form.

The fourth indication named, the removal of constipation and other collateral derangements, is a pressing necessity in all cases of dyspepsia. The stomachic and intestinal derangements are mutually reflective. Each aggravates the other; and seldom will an effort to remove one succeed unless the other is properly treated, even where one in the beginning was the cause of the other. *Enemata*, *cascara sagrada*, *rhubarb*, compound

liquorice powder, and similar laxative measures may assist in correcting this morbid condition. I frequently direct that senna leaves and figs be chopped up together and given in teaspoonful doses at bedtime—balls as large as a hickory-nut or walnut. Flushing the rectum and colon with cold, tepid or warm water will often stimulate the intestines, arouse greater activity and materially assist to overcome an obstinate constipation, and thus aid in removing dyspeptic symptoms. Other conditions, as an atonic condition of stomach or bowels with a tendency to dilatation, will require observation and correction.

The fifth indication in the treatment of functional dyspepsia, the general toning up of the system, is so important that frequently the success of the treatment will depend upon the faithfulness with which this indication is met. The building up of the general system, the entire body, is imperative. The methods for accomplishing this need not be dwelt upon in detail here. The ferruginous tonics, vegetable stomachics, *nux vomica*, quinine, massage, baths, alcohol spongings, etc., and such nutritious food as can be digested and assimilated, will occur to the mind of the physician as means to accomplish this end.

Electricity deserves a few words. This powerful agent can be used in the neurasthenic and debilitated cases with great advantage. One electrode may be put into the stomach and the other on the back or over the stomach. The inner electrode should be introduced through the stomach-tube (unless as in the Einhorn electrode, the cord is protected by rubber especially for this work) after the viscus has been well filled with water. The metal must be so protected as not to come in contact with the stomach walls. If there is no tenderness or sensitiveness on the outside, but distress or pain in the stomach, I prefer the positive pole within and the negative without. If tenderness is present on the outside the poles may be reversed.

In hysterical and neurotic cases the faradic current is useful. When ovarian disease is the cause of the digestive disturbance, I have found the positive pole at the base of the brain and the negative over the ovaries to produce excellent results. If the ovaries are tender, however, it is better to place the positive pole over these organs. In neurasthenic patients and cases suffering from exhaustion, the galvanic current will give better results. The suggestion as to electrodes is generally about as indicated above. The positive pole is sedative, the negative stimulant. The current controller should be used with both currents, and the galvanic current should never be administered without the milliamperemeter. The sensitiveness of the patient to the current will indicate the dose. When one pole is in the stomach, great care must be exercised, and usually 15 or 20 milliamperes will be found to be a large dose.

The treatment of this derangement in infants is very important, but time will not permit me to discuss it here. I will only suggest, that if the diet is corrected, quiet and rest insisted upon, alcohol sponge baths followed by cocoa-nut oil inunctions practiced twice a day, and gentle massage administered, these little sufferers will often be given great relief. Lavage may be useful in many cases.

Waukegan, Illinois.

### *CLINICAL USES OF THE HEMATOKRIT.\**

By J. B. MARVIN, M. D., Louisville, Ky.

Professor of Medicine and Clinical Medicine, Kentucky School of Medicine, etc.

In lieu of a written paper, I will occupy your time for a few minutes by showing an improved instrument, which I think is quite an addition to scientific medicine—a centrifugal machine for the examination of blood and sputum, as well as for the precipitation of the sediment in the urine and other fluids.

Blitz, about ten years ago, first suggested the use of centrifugal power in examination of the blood by an apparatus called a hematokrit. The difference in specific gravity of the red and white blood-corpuscles makes the red blood seek the periphery of the tube, while the white blood occupies the top of it. The difficulty has been in getting a machine that would revolve with sufficient velocity to make this separation practicable.

This machine is made by Metzger, of Philadelphia, after the modification of Dr. Judson Daland, who worked quite a while in Prague with Dr. Carl Sadler and others, and it is certainly, as far as my reading goes, the most practical instrument yet invented for the purposes indicated. The machine is attached to an ordinary table, and by turning the crank it is a very easy matter to obtain ten thousand revolutions to the minute, which surpasses anything I have ever seen. With this machine it is not necessary to dilute the blood in order to make an examination; you simply draw a sample from the finger of the patient into this tube—which is 50 mm. long, with a lumen of  $\frac{1}{2}$  mm. graduated into 100 parts, with a lense front—place the tube level in the frame of the revolving shaft, then turn the crank rapidly but steadily and evenly for about two minutes, making from ten to twelve thousand revolutions per minute, and you will notice that the red blood cells congregate at the periphery and further extremity, the white cells forming a layer on top of the tube. My experience has been rather limited in the practical use of this instrument, but it seems to me that it is a valuable addition to the scientific instruments we have.

I think the most tiresome and tedious work that I ever attempted was to count the blood cells under the microscope with the hemocytometer; any of you who have tried it will bear me out in this statement. I have counted the blood cells under the microscope, and then in going back over the same field make consider-

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able difference in the count. I am in favor of anything that will save time in counting the blood corpuscles and by which the work may be accurately done. It has been found that for all intents and purposes ordinarily you can get a very good idea of the percentage by volume of the red and white blood cells with this hematokrit. While I recognize that, for strictly scientific purposes, the older method may never be displaced, yet I think for quicker work the instrument I show you will take preference. In cases of anemia, leukemia, etc., examination of the blood by this method will show you in three or four minutes results, which would require a much longer time to demonstrate by the older methods. By the recent modification of Dr. Daland, we are able to examine the blood taken directly from the finger, and read off the volume by means of a scale arranged for the purpose.

In examination of the blood (and I do not believe I am a crank), I believe we do not do ourselves justice, in that we do not make more complete and frequent examinations. My rule has been, and I shall continue to do so more frequently than in the past, to make frequent scientific examinations of the blood of patients suffering from various diseases. In the laboratory we require a count of the red and white corpuscles per cubic millimetre, using the Thoma-Zeiss hemocytometer which I show you: then an estimation of the hemoglobin, by the Fleisch hemometer, which you see here in operation. Then fresh cover-glass preparations are examined for changes in the color, size and form of the red corpuscles. We should examine for the plasmodium in cases of malaria, and I have been surprised at the very few physicians who have seen this organism, and the few even among those who use the microscope, who have succeeded in demonstrating it. This is certainly a point of considerable importance in the diagnosis of malaria. Then, other specimens are fixed and stained by Ehrlich's method, which I

have previously demonstrated to you.

Examination of the sputum from suspected tuberculous patients is also important and will probably appeal to more doctors than examination of the blood, because every doctor now-a-days wants the sputum examined in every case where there is suspicion of disease in the chest. It has been my experience that cases have had clinical symptoms and history of tuberculosis, and yet I could not demonstrate the tubercle bacillus in the sputum; I have had autopsies where there seemed to be no question about the diagnosis clinically, except that the bacillus could not be found in the sputum, and the autopsy confirmed the diagnosis of tuberculosis. This may be easily explained when we consider that in microscopical examinations, as ordinarily made, we deal with such a minute proportion of the sputum, and while the bacilli may be present in considerable quantities in the bulk of the sputum, in the small specimen examined we may fail to find any. By the aid of this machine we can hasten the examination very much, and if any bacilli be present in the sputum, we cannot fail to detect them. Another point, the detection of elastic fibres in the sputum is the most important and decisive evidence of destructive changes going on in the lungs. The usual method of demonstrating elastic fibres (Fenwick) is to boil the sputum in caustic potash, adding considerable bulk of water, putting in a glass and allowing it to settle for twenty-four to forty-eight hours; the elastic fibres if present are detected in the sediment which is precipitated. A more recent method is to spread the sputum on an ordinary glass slide adding liq. pot. with the idea of dissolving the pus cells, etc., and not affecting the elastic fibres (Biedert's method). This method, while quicker and less complicated, in my opinion is uncertain and of doubtful utility. By rubbing in a mortar the sputum and drawing it up into these tubes, 50 mm. long, and  $2\frac{1}{2}$  mm. bore, and placing in the frame of the hematokrit



and revolving as was done for blood, you see how quickly and easily the more solid portions are precipitated. In this little plug are concentrated bacilli, elastic fibres, etc. Certainly, if I find elastic fibres in the sputum, I do not care whether I find tubercle bacilli or not, I know that I have something serious to deal with.

This centrifugal instrument is also of value in the examination of urine, ascitic fluid and other liquids where you want to get a quick sediment. This machine has been used more frequently, and for a greater length of time, for the sedimentation of urine, than anything else. As I have stated, the sediment is thrown to the bottom of the glass, and the method is of considerable value and importance in examining for tube-casts. Notably is this true in cases of interstitial nephritis, the most insidious, most intractable, difficult and most frequently overlooked form of kidney trouble. We can examine the urine for albumin, for tube-casts, etc. In the older methods, where it is necessary to wait for the urine to settle, decomposition takes place and no tube-casts remain. By means of this machine, within a few minutes after receiving a sample of urine, you can demonstrate the presence or absence of the tube-casts; you do not have to wait for it to settle. I have examined the urine of patients suffering from interstitial nephritis by the older methods where I have had to wait at least twenty-four hours, and even then be rather uncertain as to whether tube-casts were present or not. Sometimes in other forms of Bright's disease, the casts are scanty and will float for a while; decomposition takes place and the casts are destroyed.

The more frequent use of the hematokrit and the hemometer would help us wonderfully in clearing up cases of anemia of various kinds. The necessary technique is easily acquired, and it is a cause of regret that more physicians do not make use of these modern, thoroughly practicable methods of research.

Louisville, Ky.

## *LARGE ABSCESS OF APPENDIX VERMIFORMIS: OPERATION, RECOVERY.*

By HAL C. WYMAN, M.S., M.D.,  
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Surgery, Detroit.

I was called by Dr. Babcock, of Kalkaskia, Mich., to see Mrs. S., æt. 31. Primipara twelve years ago; menstruation regular, and health always good until two months previously, when she was attacked with pain in the right hip. A physician was called, and he thought her suffering and pain were due to neuralgia. She vomited frequently and her bowels moved regularly, but her pain continued without interruption for three days. Then vomiting, pain and fever gradually abated, and a lump, very tender to the touch, appeared in the right iliac region. This lump steadily increased in size and extended beyond the median line of the abdomen. Fever again appeared, with vomiting and much general distress and restlessness. Dr. Babcock saw her and called Dr. Johnson in consultation. They recognized the presence of a large, inflammatory swelling (abscess) in the pelvis, and advised an operation. I was called and learned the history as above related, with this addition: She had lost much strength, had been recently having temperature of 103°F., profuse sweats, nausea, loaded urine, no appetite and poor sleep. Physical examination revealed an abdomen enlarged as in advanced pregnancy, containing an immovable tumor which was smooth and regular in outline as a uterus in the seventh month of utero-gestation. The bimanual touch showed the posterior cul-de-sac filled by a hard, elastic mass, which crowded the uterus against the symphysis pubis. The ovaries could be felt pushed well forward. The bladder was contracted and emptied frequently. The rectum was compressed, and the tumor could not be moved in the slightest degree, nor could the uterus. Ovaries were distinguished by

their slight mobility. The abdomen above the summit of the tumor near the umbilicus was normal to percussion and palpation.

Diagnosis: Abscess, probably originating in appendix vermiformis, as a re-examination of the patient's history revealed occasional severe attacks of colicky pain followed by tenderness in the right inguinal region.

She was given chloroform; the abdomen was shaved and washed with soft soap and water. An incision was made in the median line through the abdominal wall; the index finger was introduced to explore the tumor. It was found intimately adherent to coils of intestine above. The cecum at its lower part and appendix were intimately involved in the wall of the tumor; the ovaries and tubes were normal. The space around the margin of the wound over the tumor was packed with gauze, and the abscess incised. Large quantity of pus discharged, but the gauze kept it from entering the abdomen. When the abscess was empty, its flaccid wall was drawn into the wound, so that the parietal peritoneum could be fastened to it with continued sutures. A drainage tube, enveloped in iodoform gauze, was now placed in the abscess. A gauze and cotton dressing was fastened over the abdominal wound by a waistband. The patient was placed in bed. The abscess discharged copiously for a week; then it gradually began to cease, and at the end of three weeks the patient was dismissed well.

46 Adams Ave., W., Detroit, Mich.

DEPILATORIES are always in demand. The popular product is sulfide barium, made into a paste with oxide zinc, amylum and water; applied for  $\frac{1}{2}$  hour and removed by washing. The following was lately furnished by a French journal: alcohol, 12 parts; iodine,  $\frac{3}{4}$  of 1 part; colloidum, 35 parts; turpentine,  $1\frac{1}{2}$  parts; castor oil, 2 parts. This solution is applied daily for three or four days, and the result is said to be satisfactory. We give it for what it is worth.

## OSTEO-SARCOMA ARISING FROM THE HEAD OF THE TIBIA.\*

By LOUIS FRANK, M.D.,

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This specimen was removed from a woman, æt. forty-eight years, who had been treated for six or seven months for rheumatism of the knee. I saw her three weeks ago, and at that time was very suspicious as to the nature of the trouble. The case was watched, and I came to the conclusion that it was an osteo-sarcoma arising from the head of the fibula. While osteo-sarcoma in this situation is extremely rare, still I thought this to be a case.

The patient was operated upon one week ago, an amputation being done at about the junction of the lower with the middle third of the thigh. Dr. Rodman rendered material assistance in the operation. The specimen upon being opened showed that it was not an osteo-sarcoma of the head of the fibula, as we had thought before the operation, but that it arose from the head of the tibia, as do most sarcomas affecting the knee. The condition is very plainly illustrated by this specimen; here you will see the epiphysis of the bone; the joint structure is not involved, the trouble existing only in the patella, where the disease is secondary, and the head of the tibia. The fibula has been sawn open and is apparently perfectly normal. I used cat-gut as ligature material for the vessels. The patient did exceedingly well. The drainage tube was removed on the third day. At the end of the third day she began to have some elevation of temperature. On opening the wound, I found a great deal of pus between the anterior and posterior flaps. This was washed out, the wound thoroughly cleansed and a gauze drain put in. The patient is doing as well as could be expected, and I believe will make a prompt recovery from the operation.

\* Reported and Discussed before the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.

## DISCUSSION.

Dr. W. L. Rodman: Dr. Frank was kind enough to ask me to see this case in consultation, and I afterward assisted him in the operation. The case was an exceedingly interesting one, for the deformity seemed to be in the head of the fibula. It looked almost certain as if it were there on account of the fact that spontaneous fracture of the tibia occurred which twisted the leg toward the fibula side. The doctor will remember, I suggested at the time that, on account of the exceeding rarity of sarcoma in the head of the fibula, and its great frequency on the inner aspect of the knee, I would not be surprised to find in this case that the trouble involved the tibia rather than the head of the fibula. In 1890 I read a paper at the meeting of the State Medical Society on the subject of "Regional Tumors," and in going over the question of tumors about the knee emphasized the point, and did it after investigating all the authorities on the subject, that it may be set down as a general rule to which there are but few exceptions in malignant growths in this region, that they are almost sure to begin either in the inner head of the tibia or in the inner condyle of the femur. They practically do not occur in the outer condyle of the femur or in the head of the fibula. I do not think that any explanation has ever been given of this fact; if there has been I have never seen it recorded. I should think, however, bearing in mind the fact, that traumatism is supposed to play an important role in the etiology of malignant growths, it may be due to the fact that more pressure is made upon the inner condyle and on the inner head of the tibia in walking, jumping, etc., etc. I venture this as the most rational explanation, though I have never seen it in any text-book.

The specimen which Dr. Frank has presented, taken in connection with one I exhibited some time ago (sarcoma of the soft parts), constitute two of the most typical cases of sarcoma that I have ever seen. One of the bone, the soft parts not

involved in any respect; the other of the soft parts, the bone being apparently healthy. I think the doctor followed the only procedure to be thought of in such cases, *i. e.*, prompt amputation.

Dr. W. O. Roberts: The situation occupied by the growth in the case reported is one of the common sites for sarcomata, and it is a fact that they are very apt to be mistaken for rheumatism or some other joint trouble in their early history. I do not suppose there is a surgeon present who has not encountered cases that have been so treated. I have seen quite a number, and in the majority of instances, as far as my experience goes, the subjects were much younger than the patient mentioned by Dr. Frank. Of course, the operation done by the doctor was the only thing to be considered, and as there was no involvement of the femur we may hope for permanent relief. If the femur had been involved in the malignant growth, I would like to ask Dr. Frank whether or not he would have stopped where he did, or whether he would have removed the entire bone.

Dr. W. L. Rodman: I would like to ask Dr. Roberts if he has ever seen a sarcoma occurring on the inside of the knee joint.

Dr. W. O. Roberts: I do not remember to have ever seen a sarcoma on the inside of the knee, and think the explanation given by Dr. Rodman as to the cause of the trouble is a very good one. We know sarcomata very frequently arise from injuries. I castrated a man not long ago for a sarcoma of the testicle which started as the result of a fall. There can be no doubt that traumatism plays an important part in the causation of sarcoma.

Dr. T. P. Satterwhite: I would like to get an explanation from the two last speakers in regard to the anatomy of the female, in connection with the development of sarcoma of the knee. If we are to look for the cause of malignant growths occurring in this situation on account of greater pressure upon the outer than upon the inner condyle, then the growth should in-

variably develop on the outer side of the leg in women and on the inner side in men, on account of the position of the femur.

Dr. J. W. Irwin: The case is certainly a very interesting one, and here again, to gain information that would be of great benefit to our patients as well as to physicians, because we know that the earlier these cases are operated upon the more important it is, I would like to know the differential points of diagnosis which led the doctor to come to the conclusion that this was a sarcoma instead of rheumatism. If he had seen this case in the earlier stages, how would he have arrived at the fact it was a sarcoma and not rheumatism? I mean before the dislocation took place.

Dr. Louis Frank: In answer to Dr. Roberts: I believe had the femur been involved, it would have been better to have taken out the entire bone. Another point as to the origin of these growths, that is, following an injury or blow of some sort: I endeavored to find some cause for the development of this growth in a wound or injury about the knee, but was unable to elicit the history of anything approaching an injury, except possibly a blow upon the knee ten or twelve years ago. She stated, however, that she did a great deal of washing, and thought keeping her knee against the chair upon which the tubs were placed, might have had something to do with the production of this tumor.

As to the differential diagnosis between an osteo-sarcoma and rheumatism: It was very easy in this case, because there was absolutely no involvement of the joint whatever, and I believe this is true of all osteo-sarcomas about the joints. They involve the bone without affecting the joint structures, going even from one bone to another, leaving the joint intervening in a normal condition. As I have said, in this case there was no involvement of the joint proper, and no increase of the synovial fluid. The pain was entirely outside the joint. There was some slight elevation of temperature locally, but she had

no general elevation. It was upon these points that I based my diagnosis. When I first saw the case the fracture had not occurred. This occurred a day or two prior to the operation. The case was a very easy one in which to make a diagnosis. The only question in my mind was not a differentiation between osteo-sarcoma and rheumatism, but the possibility occurred to me that it might be specific disease or some other trouble involving the bone.

#### TREATMENT OF CYSTITIS IN THE FEMALE.—

Dr. JOHN C. HERSLER contributes a valuable paper on this subject, in a recent issue of the *University Medical Magazine*, from which we take the following summary of indications for treatment:

1. To remove any discoverable source or sources of irritation which act through the medium of the urine. This may be effected by a milk diet, and a discontinuance of the use of acids, pepper, etc. Any mechanical source of vesical irritation should receive appropriate treatment.

2. The urine should be rendered bland by the use of a milk diet, the ingestion of considerable quantities of water, the administration of potassium citrate, if the urine be too acid, or of boric acid if it be alkaline.

3. Pelvic congestion should be relieved by hot vaginal douches, placing the patient in the knee-chest position; and the correction of constipation.

4. The inflamed cystic mucous membrane may be relieved by the administration of boric acid, salol, ol. santali, copaiba, or creosote by mouth; or the use of injections of boric acid, carbolic acid, or nitrate of silver in suitable strengths.

5. The patient's general health should be improved by tonics, etc.

6. Rest in bed, especially in all acute cases, is absolutely imperative.

The writer recommends direct local treatment in cases which do not respond promptly to ordinary therapeutic measures, but suggests that judgment and caution must be exercised in such cases.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
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## Editorial.

### THE TREND IN MODERN THERAPEUTICS.

That there are substantial evidences of progress in scientific therapeutics cannot be denied, and since the AMERICAN THERAPIST has been instrumental in paving the way for rational advancement, by opening up and cultivating hitherto unknown and unexplored territory, a brief recapitulation will not be out of place at the present time. In the first place, it will be appropriate to direct the attention of our readers to the timely and suggestive paper contributed to this number by Dr. J. B. MARVIN, of Louisville, Ky., bearing upon the advantages and need for a more thorough acquaintance with the condition of the blood in diseased condition. A number of years ago, when Dr. OSLER came to Philadelphia to take the position of Clinical Professor of Medicine at the University of Pennsylvania, it was thought he would command a large and lucrative consultation practice, but owing to his advanced ideas on this particular point, he was not popular. Indeed, he not only failed to get the consultations, but his theories were scouted, simply because one of the first questions asked of the

medical attendant was, "Have you examined the blood?" And it is too true, even at the present day, that the general practitioner has no use for a consultant who wants to know the condition of the blood.

Now, the work of the AMERICAN THERAPIST has been what might be called "cumulative," since it has not only impressed the need for making blood examinations in various diseases, but has pointed out the great advantages of studying the effect of medicaments upon the blood and upon the cellular structures of the economy. The editor is in receipt of numerous letters from physicians throughout the country thanking him for the benefits they have derived from pursuing this course, and not a few have revolutionized their methods of practice in conformity with the teachings put forward in relation to cellular-therapy. A notable instance of this will be seen from a perusal of the communication of Dr. JACOBSON, of New York, in the present number. Dr. JACOBSON has apparently grasped the situation, although he has but entered the confines of this vast territory, inasmuch as he has investigated but a single department, *vis.*, that of nuclein medication. Special attention is directed to his interpretation of the antitoxine theory, a theory which the writer has already described as crude and imperfect, since it is founded upon mistaken notions of chemical and physiological laws, due to the fact that the premises assumed are incorrect.

However, a most encouraging feature of this study is the fact, that more scientific notions begin to find their way into books, as the following extract from the editorial department of *The Medical Annual*\* will show:

"One of the first things to be expected in the construction of a science of therapeutics is the distinction between the exhaustive or toxic action of a drug and its stimulant or remedial action.

"The pursuit of such investigations

\* E. B. Treat, New York: *The International Medical Annual*, 1895.

may also lead us to alter the views at present entertained respecting the nature of drug action. Effects which are apparently due to the stimulant effect upon the functions of the body, may be found to be really due to an exhaustion of the functional energy; it may even be shown that every symptom produced by a drug on the human body (such symptoms as call attention to themselves) is due to a depression of vital energy.

"If this is so, it may be possible to have some definite law by which we can distinguish a "drug" from a "remedy," the "remedy" being an agent which will not produce symptoms when administered to the healthy person.

"The main difficulty which appears to stand in the way of our being able to adapt our therapeutic agents to physiological principles is, that we do not *think* in physiological terms. We speak of nervous excitement as if it were due to an increase of energy, whereas, physiologically, it is due to a diminution of nervous power. We subdue the excitement by a dose of bromide, and as the result is satisfactory, we consider that we are practising "rational" therapeutics. Physically, we are only further exhausting a weak nerve, and thereby throwing it temporarily out of action. The symptom is removed, but the disorder is none the better. If we thought physiologically, it is not the dose of bromide which would suggest itself, but some nerve tonic, given in a dose that would restore the exhausted nerve, without exciting it. We should use a stimulant to produce a sedative action.

"It is not necessary, for the elevation of the art of therapeutics to a science, that one formula, one law, or one system should be adopted. No branch of science is governed by the application of one single rule. We already recognize definite physiological laws which are demonstrably true, and it appears that when we use remedies in accordance with these laws, we shall be practising a science, not an art."

### OXYTOXICS.

Notwithstanding the vast amount of literature which has appeared on the subject of oxytoxics, it must be candidly admitted that at the best they are uncertain. They are uncertain because they do not always act—owing to failure to be absorbed, or distributed throughout the cir-

culatation, when given hypodermatically—and when they do produce an effect upon the uterine muscle, that effect may not be the one desired. Usually, the object of an oxytoxic is to cause contraction of the *circular* fibres of the uterus, but any remedy which will do this effectively will also have a like effect upon the longitudinal muscular fibres; and if the action of the drug be more striking upon the latter than the former, it were far better that no oxytoxic had been employed.

The most frequently used remedy of this class is ergot, and when indicated, a single, substantial dose will in most instances produce distinct effect upon the recently gravid uterus. Owing to the fact that this drug is demanded often in an emergency, small doses are not sufficient for the purpose, and it should also be borne in mind that ergot, by cutting off the circulation, may cause gangrene. Thus it is not impossible that long continued doses of ergot might affect unfavorably patients suffering from a disordered physical condition, such as diseased pulmonary apparatus, or an abnormal condition of the circulatory apparatus in the extremities.

Quinine is sometimes used for its power over the uterine muscle, and when there is a relaxed condition of the blood-vessels, it will produce effects preferable to ergot; but it is much slower than the latter, and on the whole, is no more certain in its influence upon the different sets of fibres. In the case of subinvolution it is far preferable to ergot, but even here it is not always certain.

For the emergency, there is probably no more effective remedy than strychnine, given hypodermatically, and especially is this the case in patients exhausted by long continued labor; but there is a most serious drawback to its administration, since it acts quite as energetically upon the longitudinal as upon the circular fibres of the uterus. On this account, unless the dose is quite sufficient to produce energetic contractions, secondary hemor-

rhage is liable to occur, and being concealed, the accoucheur is in danger of being misled as to the condition of the patient.

*Actea racemosa* (*cimicifuga*) is an effective and useful oxytoxic, but, unfortunately, it is extremely slow in its action, and consequently cannot be depended upon. Many physicians have found it of great value, given for some weeks preceding the expected delivery, and as it is supposed to have a favorable effect upon the nervous mechanism, this must be regarded as good practice.

The foregoing remedies should be regarded as the representatives of the stimulant oxytoxics; there are others which owe their value to the depressing effect which they have upon the nervous system, including such drugs as gelsemium, lobelia, ipecac, and other nauseants and sternutories, but they can be given only to plethoric patients, and even then, with caution, because of the after-effects which not infrequently attend their liberal administration. The selection of oxytoxics, therefore, must remain for the attendant, and he will be guided in arriving at his decision by the condition and demands of his patient.

#### PILOCARPINE TO PRODUCE HYPER-LEUCOCYTOSIS.

In the secular press of late date there have appeared reports of remarkable claims made for pilocarpine\* in the treatment of cancer, pulmonary tuberculosis and other affections, on the strength of certain investigations of Dr. Waldstein, lately of New York, but now of Berlin. According to the information at hand, it appears that these claims have been authorized by reason of the fact that pilocarpine produces an hyper-leucocytosis, *i. e.*, an increased number of white blood-corpuscles are discovered in the blood current—similar to the conditions which obtain after taking a meal (digestive leucocytosis)

\* The report in full will be found on another page of this journal.

—but in hastily assuming that this would be a *cure* for disease of any description, it should be borne in mind that leucocytosis, to be effective, must have something more as a foundation for its usefulness than a repetition of the remedy.

While pilocarpine might be of service as an aid in the treatment of various diseases, owing to its favorable influence upon the white blood-corpuscles, unless the nutrition of the patient could be maintained at the highest standard, the debilitating effects of the drug would soon become manifest. From its depurative action, as first pointed out by BARTHOLOW, undoubtedly good results would ensue, where the condition of the heart will permit its repeated administration, but as soon as nutrition becomes impaired, leucocytosis is of no avail. And herein lies the secret of the successful application of nuclein medication. Nuclein enacts the rôle of a ferment, supplying the white blood-corpuscles with the constituent elements required for the further elaboration of their function in the organism.

Pilocarpine medication for the purpose of producing hyper-leucocytosis with a view to arrest the progress of chronic disease is destined to failure; its successful employment in the treatment of acute diseases, and for its specific action as a depurant for a limited period, is an entirely different matter; but in neither case can the practise be expected to produce favorable results unless we can successfully establish a healthy condition of the apparatus. In addition to this, however, it will be requisite that some suitable cardiac or circulatory tonic should be exhibited simultaneously in order to counteract any depressing effect following the administration of the drug. In the case of organic disease of the heart its administration would be contra-indicated; and in the case of large doses being administered, say, as much as one grain hypodermatically, the patient is liable to be drowned by the profuse bronchial secretion.

Those wishing to study the subject of pilocarpine medication from a clinical standpoint, should read the editorial comments entitled, "Points on Pilocarpine," in the *AMERICAN THERAPIST* for March, 1895.

## Current Literature.

**ACETANILID IN THE TREATMENT OF MALARIAL FEVER.**—At a meeting of the Philadelphia County Medical Society, held Feb. 13, 1895, Dr. Oscar H. Allis read a paper contributed by Dr. Benjamin Brodnax, of Brodnax, La., in which the recommendation was made (*Phila. Polyclinic*) that acetanilid should be used instead of quinine in the treatment of chills and fever. Dr. Brodnax states that he has treated several hundred cases in this way and always successfully. If there is time before the chill, he gives from one-and-a-half grains to two grains of calomel in one-quarter-grain doses half an hour apart; after which, whether the bowels have moved or not, from two to six grains of acetanilid, according to the age of the patient, are given twenty minutes or half an hour before the expected chill. Gentle perspiration with natural sleep usually promptly follow the administration of the drug, and the patient awakens, entirely relieved, in about half an hour. Should this effect not be produced, a second dose of equal amount should be given half an hour after the first. If there is not time before the chill to administer the calomel, this may be deferred until after the acetanilid has been given and its effect has passed away.

The after-treatment consists of the administration of the following:

Diluted nitro muriatic acid. . . 1 fluid ounce.

Ferrous sulfate. . . . . 80 grains,

Mix, and allow to stand for twenty hours.

Dose.—Ten drops in water 3 or 4 times a day.

**TWO HUNDRED CASES OF PHTHISIS.**—A report on so extended a record of clinical observations is necessarily important; it is presented in abbreviated form, more argument than record, by Dr. GEORGE G. SEARS, of the Boston City Hospital, in the *Boston Medical and Surgical Journal* (No. 14, 1895). His conclusions as to treatment are not specific, but they deserve consideration and hence are here quoted:

Owing to the very incomplete condition of the records as well as the short time during which many of these cases were under observation, the results of treatment can only be given in the form of an impression, which is, however, less liable to be wrong in out-patients than among other classes of patients, since there is usually but one factor to be estimated. In private or hospital practice when it is possible to modify the diet and general manner of life, doubt always arises as to whether improvement, should it take place, is to be credited to this or to the drugs prescribed, while among out-patients such modification is rarely possible and then usually but to a limited extent. It is of little use to order a special diet to those who are already a drain upon a family struggling for the bare necessities of life, to recommend an abundance of fresh air to those who fear a draught more than death, or to give special directions as to exercise where intelligence is lacking to appreciate its value. Drugs, however, are usually conscientiously taken, so that whatever change for the better takes place can with a certain amount of confidence be ascribed to them. This limitation of one's resources makes the treatment of such patients at best discouraging work, yet it has seemed to me in watching the progress of these cases, that a larger proportion of them improved than previous experience had led me to expect, while a cure, as shown by the disappearance of all signs and symptoms, occurred in a few instances. Routine treatment, when the prognosis was absolutely fatal, consisted in the administration of guaiacol (occasionally creasote) in doses rarely exceeding five minims three times a day, together with arsenic and digitalin. In a few cases the dose of guaiacol was gradually increased to fifteen or twenty drops, but no advantage could be seen in the larger amount. Except in one or two cases, where it excited some digestive disturbances which disappeared with a reduction of the dose, patients took it



without trouble, almost the only complaint ever made being the somewhat acrid taste and persistent odor of the breath, of which they were themselves very conscious. The most marked effects for good were seen in the improvement in the general well-being of the patient, and were shown by a gain in appetite and weight, and a decrease in the cough, even in many where the physical signs remained stationary or even seemed to be advancing.

**NUCLEIN SOLUTION FOR DIPHTHERIA.**—There appears in the current issue of the *Medical World*, a most interesting and suggestive report on the administration of nuclein solution (from the thyroid and thymus glands), in the treatment of diphtheria, by Dr. E. ERSKINE, of Rogers City, Michigan. A general idea of the formidable character of the disease may be obtained from the following extracts, although it should be stated that nuclein medication was not begun until after the expiration of twenty-four hours, the treatment for the first day being such as would be fully endorsed by the best modern authorities:

On December 4th I was called some nine miles into the country to investigate the sickness that had prostrated an entire family of six persons. As I approached the building I observed it to be an old log building, such as were built by early settlers. I entered and was shown a room (two in all composed the interior), and at the same time I inhaled a terrible odor. Upon two straw couches placed upon the floor lay six persons, ranging in ages from seven to twenty-one years. Upon examination, I pronounced the disease diphtheria. The mucous membrane was well covered with the exudation, the entire surface of the tonsils, palate and fauces being covered. The urine showed albumin in large quantities. I began tracing the disease and found that the mother had been visiting a family sick with the disease in which three children had perished out of four. The temperatures were ranging from 103° to

105° F., with great prostration and considerable swelling of the neck. They were unable to take any food, although the mother was endeavoring to force it. (I will add that these patients had been sick a week previous to my visit.) \* \* \* \*

The nuclein treatment was not begun until my second visit, as I had ordered my supply and it had not arrived at my first visit. Previous to its use there was no great change for the better, but upon my third visit, there was a marked change. In three of these cases the temperature was normal, and in three slightly above the normal. The membrane was loose and coming away in large flakes. There was no pain in the throat. The patients enjoyed themselves in various ways, and their appetites were good. Convalescence was rapid, and without complications of any kind. I crowded the nuclein, and at no time were there any poisonous symptoms. I have had considerable experience with diphtheria and its treatment. These cases were the most satisfactory to me of any I have treated.

**ANTI-TUBERCLE SERUM.**—Dr. PAUL PAQUIN, of St. Louis, who has for some years been working on the lines laid out by Metchnikoff, Richet, Roux, Behring, and others, announced last December that he had produced a serum of antitoxine for tuberculosis; since then he has accumulated clinical records with his limited supply of serum, and a full report to date was made by him recently before the St. Louis Medical Society. From this report we extract, as currently interesting, his method of treatment and a competent expression on the prospects of sero-therapy:

*The treatment* began with injections of ten drops hypodermically, in the back between the shoulder blades. In a few days we increased to twenty drops, then to thirty, forty and sixty. Some were given as many as seventy drops once a day for a while. In a few in private practice, I have injected as much as 150 drops at one sitting, every day for several days. No

reaction whatever followed these injections, and the pain was no greater than after the usual injection of a morphine solution. There resulted no accidents whatever, from a total of over 1,500 injections in the various patients, except at the City Hospital, where two benign abscesses were produced, as occurs sometimes after other kinds of hypodermic injections. They were, without doubt, due to micro-organisms in the syringe, probably on the leather ends of the piston of the syringe used at the time, or in the needle. Careful disinfection of the syringe will always prevent this accident. The serum was, in fact, *innocuous*; it seems absolutely so, it well prepared.

**PROSPECTS OF SERO-THERAPY.**—The future of the serum-therapy in several infectious diseases is secured beyond peradventure. We may have been too enthusiastic and may have expected more than we can now obtain, perhaps; and possibly, the enthusiasts may be painfully disappointed in their hopes for immediate wonders from the sero-therapy in diphtheria, tetanus, etc., but the fact will always remain that this system is unquestionably rational, and eventually it must yield success in therapeutics where all else must fail, for it is the one rational, truly physiological treatment; the only treatment, in my humble judgment, from which can be derived positive beneficial results in the cure of infections. It is Nature's own remedy. Man, with the serum, is using Nature's own weapon of defense; he has found out how he may add power to the natural resources of the organization in the fight for human existence. This system of treatment is not a spontaneous eruption in therapeutics. It is not an explosion in over-zealous laboratory delvers, with more theory than experience; it is the result of years of research in all the laboratories and in the chief clinics of the civilized world, particularly France and Germany. And it is not only yesterday that it appeared in practice. It was several years ago that Kitasato applied his

antitoxine successfully against tetanus. Diphtheria had been treated successfully for a year or more. Syphilis is now treated experimentally with it; and lastly, your humble servant begs to submit to your indulgent criticism, the result of his meagre labors conducted under extreme difficulties (without state or financial aid, that is, when these were most needed), particularly during the applications and experiments of the last two years. The future of sero-therapy in tuberculosis is, in my mind, very bright and very promising. The first and second stages have been benefited under unfavorable circumstances, by only slightly immunized serum. Consequently, it is only fair to reason that with more strongly immunized serum, such as is now ready to use (I have only a limited quantity), much better and quicker results can be obtained, particularly if better hygiene and dietetic conditions obtain.

**OPIUM IN EPILEPSY.**—WOOD, in the *Univ. Med. Magazine*, furnishes the following extract of a notable report: COLLINS (*Medical Record*, Sept. 22, 1894) has employed the treatment suggested by Professor Flechsig, of Leipsic, in about fifty cases of epilepsy. Briefly, the plan is as follows: The patient is first given one-half to one grain of opium, and this is rapidly increased until at the end of the first week he is taking fifteen grains or more a day, in doses of from one to four grains. At the end of six weeks the opium is entirely suspended, and potassium or sodium bromide (one-half drachm four times daily) is substituted. After these large doses of bromide have been continued for some time, the amount is generally lowered, until the patient is taking less than forty grains a day. It is important that the bromide should immediately follow the suspension of the large doses of opium. The writer concludes:

(1) The plan suggested by Flechsig is not a specific in the treatment of epilepsy.

(2) In almost every case in which this plan of treatment has been tried there has been a cessation of the fits for a greater or less time.

(3) A relapse generally occurs in a period varying from a few weeks to a few months.

(4) The frequency of fits after the exhibition of opium is, for the first year at least, lessened more than one-half.

(5) The attacks occurring after the relapse are much less severe in character than those that the patient has been accustomed to having.

(6) This plan of treatment is particularly valuable in ancient and intractable cases.

(7) In recent cases of idiopathic epilepsy it cannot be recommended.

(8) The opium plan of treatment is an important adjuvant to the bromide plan as ordinarily applied.

(9) The opium acts symptomatically, and merely prepares the way for and enhances the activity of the bromides and other therapeutic measures.

(10) This plan of treatment permits the use of any other substances which are known to have a beneficial action in epilepsy.

**PILOCARPINE IN THE TREATMENT OF TUBERCULOSIS.**—The following is the text of a press dispatch published April 10th, and which has caused a new ripple of excitement:

WASHINGTON, April 12.—The interest aroused by the publication of the discovery in Berlin by Dr. Louis Waldstein, of New York, of a cure for consumption and cancer, has caused the Department of State to make public the full text of the official report from Consul-General De Kay at Berlin, which has just been received. It is as follows:

"The coming medical congress at Munich is likely to give no little attention to a discovery made by Dr. Louis Waldstein, of New York, which is announced this week in the *Berliner Klinische Wochenschrift*, the most serious and trustworthy medical weekly in Germany. The Congress will have much to say about Loeffler and Behring Heilserum for the cure of diphtheria,

and as Dr. Waldstein's discovery in a certain sense completes the Heilserum, acting favorably on patients whom the serum does not cure, the new idea of the American can hardly fail to be noticed.

"I have thought that such a discovery, even if it only cured the obscure and hitherto incurable disease of the skin called lupus, ought to be known at once in America, where it may save lives and shorten much affliction.

"During his earlier studies in New York, Dr. Waldstein—born in that city, and the possessor of a large practice there—had his attention called to pilocarpine, an extract usually sold in crystals, from the *jaborandi*, a Brazilian plant—*pilocarpus pennatifolius*. This well-known alkaloid acts powerfully on the salivary and the sweat glands.

"At the same time Dr. Waldstein was trying to discover the effects of the stimulation of various glands, like the thyroid, lymphatic, etc., on the entire system. He made the discovery that pilocarpine exercised the most surprising effects on the lymphatic glands and the entire system to which we ascribe the elaboration of the lymph, or white corpuscles of the blood.

"Having given himself a year's holiday, he passed some time at the hospital at Nancy, France, where many consumptives and other patients affected with forms of tuberculosis were watched by him. Then, coming to Berlin, he passed the last four months at the 'Urban,' and enjoyed all that hospital's generous welcome to serious foreign students.

"It was there that he proved to himself the truth of his reasoning on the relations of the lymphatic system to diseases like lupus, as well as tuberculosis in other forms, to diphtheria and other diseases still.

"The key of his discovery is this: By successive injections of minute doses of pilocarpine in the veins he arrives at a gradual stimulation of the lymphatic system. That system increases the white corpuscles in the blood, which corpuscles, as is well established, through Metchnikoff of the Pasteur Institute of Paris, Hankin of Cambridge, and Buchner of Munich, in some way not generally agreed upon, do certainly overcome and cause to be harmless those poisonous particles in the blood which produce disease. Metchnikoff thinks that the microbes which destroy the red corpuscles of the blood are swallowed and englobed alive by the white corpuscles. Hankin and Buchner think that the white corpuscles merely absorb the dead microbes, and, therefore call the white corpuscles 'alexine,' or protective particles. Dr. Waldstein goes to the fountain whence these white corpuscles spring, and tries to enliven its action and productiveness, when, through disease, these health-giving

particles have become too few to keep the blood in proper order.

"Dr. Waldstein has not had time to watch the effect of his discovery in relation to tuberculosis of the lungs, but the reasoning that led him to what he has already achieved seems equally good for the cure of this terrible scourge of mankind.

"He strongly advises physicians to try pilocarpine in the early stages of consumption and, indeed, in all diseases where the lymphatic system is involved, because of its stimulating action upon the organs in that system and the consequent production of white corpuscles. He has satisfied himself that pilocarpine, when injected in the veins, forms a trustworthy test for the presence of tubercular disease in man and in animals, giving the physician the strongest possible certainty in the diagnosis of obscure cases.

"A striking instance of the truth of his reasoning is the case of a man 24 years old, a Berliner, who has had a lupus on the back of the right hand for twenty-two years and was thought incurable. Relief was immediate after the first injection and the hand is almost healed. This cure has created a sensation among medical men, and some hope that the road to the cure of cancer also has been entered."

**OBJECTIONS TO THE ANTITOXINE TREATMENT OF DIPHTHERIA.**—Dr. Samuel T. Armstrong, of New York, sends the following suggestive communication to the *New York Medical Journal* of April 13, 1895, respecting the criticisms made upon the antitoxine treatment of diphtheria:

Those that heard Dr. Winters's very comprehensive criticism of the value of antitoxine serum in diphtheria, at the meeting of the Academy of Medicine on the 4th inst., can not but feel that an important factor has been overlooked in the consideration of the treatment of diphtheria with this substance; and that factor is the globulicidal power of alien serum on the blood of an animal into which it is injected.

In a monograph on *Transfusion of the Blood*, published in 1875, L. Landois reported that the serum of the dog, the horse, or the rabbit dissolved the red globules of other animals with great rapidity; and in the last edition of Pro-

fessor Stirling's translation of Landois's *Physiology* there is the statement that, if the serum of one animal is transfused into an animal of another species, the blood-corpuscles of the recipient are dissolved, and if there is a general dissolution of the corpuscles death may occur.

Dr. G. Daremberg (*Archives de méd exp.*, 1892) stated that his experiments showed that, while the serum of an animal of one species did not destroy the corpuscles of an animal of the same species, it rapidly destroyed the corpuscles of another species. If warmed to from 122° to 140° F., or exposed to the light for several days, the serum lost this globulicidal power.

G. Hayem, in his monograph on *The Blood*, states that the serum of the ox more or less profoundly changes the blood of the dog, producing in it small emboli that may involve the functions of organs or even life itself. Microscopically, these emboli consist of degenerated elements of the blood, the hematoblasts and the red and white corpuscles being altered by the serum. He specifically states that horse's serum produces phenomena similar to those caused by the ox's serum. He further states that the urine is habitually suppressed and the kidneys are congested.

The tendency of alien serum to produce emboli has also been noted by C. Lazet (*La France méd.*, 1891), who found that if the serum of a dog was mixed with the blood of a man, or *vice versa*, there were produced more or less pronounced alterations, and solid concretions were formed from the metamorphosed elements.

The undersigned believes that it was this tendency of alien serum to form emboli that caused the death of the seventeen-year-old girl in Brooklyn. And this toxic influence of serum *per se* explains all the unusual and untoward phenomena that have been reported in diphtheria patients treated by antitoxine serum. The post-mortem lesions found in the five-year-old child whose history is reported in the *British Medical Journal* for March 30th, correspond throughout with those ob-

served by Hayem in dogs that died from the effects of alien-serum injections, though the animals were given forty times as much serum as the human being.

Empiricism that has bacteriology as its sole foundation is as condemnable as any other form of that cult, and, as prognosis is not yet a lost art, it seems absurd that the medical profession should accept the dictum that all persons whose nasal or faucial secretions contain the Klebs-Loeffler bacilli should be injected with antitoxine serum. There are many recorded instances in which the bacilli have been found in the secretions of healthy individuals, and there are some recorded instances in which these bacilli have not been found in patients who clinically presented the phenomena of the disease, even to the secondary paralysis.

While antitoxine serum has probably a field of usefulness, it is evident that nice discrimination is necessary to designate wherein it lies.

## Recent Medicaments.

SALITHYMOL is a new introduction, a compound of salicylic acid and thymol, designed to find adoption as a superior antiseptic. It is described as a white crystalline powder; chemical formula:

$C_6H_5 \begin{matrix} \diagup OH \\ \diagdown COO-C_{10}H_{15}O \end{matrix}$ ; readily soluble in alcohol, almost insoluble in water, and having a sweetish taste.

HEL COSOL is the rather awkward proprietary name applied to a pyrogallate of bismuth; the product is supplied as a fine, greenish-yellow, amorphous, tasteless and odorless powder, containing about 60 per cent. of bismuth. It is an intestinal antiseptic, with probable value in diarrheal affections. No clinical reports as yet.

FERROPYRIN is the proprietary name for an iron chloride and antipyrine compound, made in Switzerland and used there during the past four years as a satisfactory agent for anemia, migraine, chlorosis, etc. Re-

cently the antipyrine makers in Germany have introduced a product which they label *Ferripyrin* and recommend it as a styptic. The two products are chemically identical, and the complications which the rival business announcements may cause should be avoided by applying to them the legitimate designation, Antipyrinum ferro-muriaticum, or Ferro-Antipyrinum muriaticum.

A NEW EDITION of the French Pharmacopeia of 1885 has been issued with a supplement of 100 pages; this edition became official January 10th, 1895. It is interesting to note the new remedy admissions, and the official titles selected for the products bearing proprietary names, as follows:

Antifebrine:	Acétanilide.
Antipyrine:	Analgésine.
Aristol:	Diiododithymol.
Benzonaphthol:	Benzoate de naphthol $\beta$ .
Dermatol:	Gallate basique de bismuth.
Exalgine:	Méthylacétanilide.
Phenacetine:	Acet-Phénétidine.
Saccharine:	Acide anhydro-ortho-sulfamide-benzoïque.
Salipyrine:	Salicylate d'Analgésine.
Salol:	Salicylate de Phénol.
Sulfonal:	Acétone-diéthylsulfone.

Only two of these products are official in the United States Pharmacopeia, viz.: Acetanilide and Salol.

"A LITTLE LEARNING, etc."—An erudite member of a certain medical society lately entertained—and possibly enlightened—his confreres by reading an original paper on "Coal-tar Products." He disavowed, by way of reassuring the listeners, any intention of giving a complete list; and to save time in the physical descriptions, he classified them generally as "solids, semi-solids and liquids." His descriptions were brief, and criticism on this score is therefore partly disarmed,—in fact, this consideration deserves approbation. Many of the products described are innocent of any coal-tar contamination, but that was probably not noticed at the time, or possibly the title to the paper when printed was supplied carelessly. Other products named are yet obscure, as for instance: "treccosal," "treccresalimine," "tetrinol," "tolerine," etc.; it is to be hoped that the author will return to the subject in a second paper, and furnish current medical literature with details of these few products. The subject of new remedies is a never-exhausted source of fruitful speculation and rich finds.

**ANTIDIPHtheritic Serum** made in Germany, although the production is entirely in the hands of private individuals and firms, is now under government control. The official edict went into effect April 1st; it prescribes, that the serum can be sold only on physicians' prescriptions and only by pharmacists; that the serum must be stored in cool and dark place; that it must have no—or at most, a very little—sediment; and that every vial must be examined by the appointed Government official, at the control station established in the Institute for Infectious Diseases in Berlin, where approved serum is sealed with a Government stamp. These precautions are well applied, but will hardly differ in any way from the safe-guards voluntarily adopted by the manufacturers previously.

In this country, where serum is now produced in a score of large and small laboratories, such control might also be adopted with advantage; as it is contrary to the spirit of our institutions, however, and not likely to ensue, it behooves the general practitioner to employ only the serums supplied by firms and institutions of well-known prominence—whose products are guaranteed by the necessity to maintain the integrity of established reputation.

**PHENOCOLL** is endorsed as a specific in malaria by Dr. Ribet (Algiers), in a clinical report covering twenty cases (*Revue de Thérapeutique*); from his observations he concludes that in doses of 30 grains for adults, and 7 to 10 grains for children, administered from three to five hours before an attack—treatment to be continued for a week, at least—the fever attacks are reduced and finally cease, headaches and splenic disorders and enlargement disappear, and recovery is complete and without any side or after-effects. This report once more confirms the similar therapeutic contribution of Dr. Cerna, published two years ago at the Pan American Medical Congress.

**SALACETOL**, the improved substitute for salol as intestinal antiseptic, has been repeatedly described and announced under three different names, *salacetol*, *salantol* and *salautol*; the last two were started on their rounds through the international medical press in consequence of typographical errors—*salacetol* being the only correct name. Similarly the *Pacific Druggist*, now edited as a joint pharmaceutical and medical journal by Dr. Abrams, has started afloat a new uric acid solvent: *Hysadine*, by which version the compositor and proof-reader interpreted the editor's writing of *Lysidine* ( $C_4H_8N_2$ , a piperazine compound). The nomenclature of new remedies is so ingenious and voluminous that such errors find ready credence, and help to further complicate and confuse matters.

## PUBLICATIONS RECEIVED.

**A MANUAL OF BANDAGING**, *Adapted for self-instruction*. By C. HENRI LEONARD, A.M., M.D., Professor of the Medical and Surgical Diseases of Women, and Clinical Gynecology in the Detroit College of Medicine. Sixth edition, with 139 engravings. Cloth, octavo, 189 pages. Detroit, Mich.: The Illustrated Medical Journal Co. (Price, \$1.50).

The main feature of this book is that each illustration shows the direction of the various turns of the bandage with arrow-heads, and each turn is properly numbered; this renders the book a self-instructor to the reader, who has but to put the various bandages about the limbs of an office companion a few times, when the "trick" of its application upon a patient has been learned. It takes the place, in this way, of hospital drill. Besides the "Roller Bandages," the various "Cravats," "Slings," "Tailed," "Adhesive" and "Plaster" bandages, and "Immovable Dressings" are given. The book is divided into sections treating of "The Bandages of the Head," of "The Body," of "The Upper Extremity," of "The Lower Extremity," "Knots," "Strappings," "Compresses" and "Poultices" with full description of making and applying the same. There is an illustration for nearly every bandage described. This is the sixth edition of this practical volume, good evidence of its value and wide circulation. It makes a good text-book for students, and will prove available for study and reference to every practitioner.

**Early Diagnosis of Cancer of the Uterus**. By EDWIN RICKETTS, M.D., of Cincinnati, O. Same author: *Chloroform in Labor*. Reprints, 1895.

KARL GREN, ein historischer Beitrag zur Lehre von der Arzneiwirkung; von Prof. HUGO SCHULZ, Greifswald.

**The Consideration and Cure of Chronic Tubercular Consumption of the Lungs**. By ASA F. PATTEE, M.D., of Boston, Mass. Reprint, 1895.

**Magnesium Sulphate as a Purgative**. By JAMES WOOD, M.D., of Brooklyn, N. Y. Reprint, 1895.

**Abnormalities of the Upper Respiratory Tract and Ear**, Found Commonly among Deaf Mutes. By ARTHUR AMES BLISS, M.D., of Philadelphia. Reprint, 1894.

**The Non-surgical Treatment of Ovarian Disease**. By J. H. KELLOGG, M.D., of Battle Creek, Mich. Reprint, 1893.

**Cellular Therapy**. By CHARLES P. KNAPP, M.D., of Wyoming, Pa. Reprint, 1894.

**Effect of the Local Application of Guaiacal in the Reduction of the Temperature in Typhoid Fever**. By H. G. MCCORMICK, M.D., of Williamsport, Pa. Reprint, 1895.

**What is Tuberculosis?** By CHARLES DENISON, M.D., of Denver, Colorado. Reprint, 1894.

The Importance of Active Treatment of the Naso-pharynx in the Treatment of Obstructive Disease of the Lachrymal Passages. By C. A. VEASEY, M.D., of Philadelphia. Reprint, 1895.

The Commercialization of Medicine: or, The Physician as a Tradesman. A Sociological Study. By THEODORE W. SCHAEFER, M.D., of Kansas City, Mo. Reprint, 1894.

Symptoms and Treatment of Tumors of the Bladder. By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1894.

Further Observations upon the Etiology, Diagnosis and Treatment of Acute and Chronic Appendicitis. By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1894.

The Indications and Nature of Treatment in Severe Abdominal Injuries and Intra-abdominal Hemorrhages Unaccompanied by External Evidences of Violence. By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1895.

Radical Treatment of Hernia, with 100 Tabulated Cases. By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1894.

Kocher's Method of Reducing Sub coracoid Dislocations of the Shoulder; with cases of fracture incident to the procedure in old displacements. By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

A Case of Gun-shot Wound of Liver and Lung. By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

Two Cases of Congenital Hypertrophy of the Fingers. By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

Caries of the Spine followed by Compression of the Cord. By J. T. ESKRIDGE, M.D., of Denver, Colorado. Reprint, 1894.

Multiple Neuritis with Development of Unilateral Facial Paralysis Late in the Course of the Disease. By J. T. ESKRIDGE, M.D., of Denver, Colorado. Reprint, 1894.

Tumor of the Cerebellum. By J. T. ESKRIDGE, M.D., of Denver, Colorado. Reprint, 1895.

Castration for Hypertrophied Prostate. By B. MERRILL RICKETTS, M.D., of Cincinnati, Ohio. Reprint, 1894.

Removal of the Head of the Femur from the Lesser Sciatic Notch. By B. MERRILL RICKETTS, M.D., of Cincinnati, Ohio. Reprint, 1894.

The Ratio that Alimentation should bear to Oxygenation in Disease of the Lungs. By BOARDMAN REED, M.D., of Atlantic City, N. J. Reprint, 1894.

Dermoid Cysts of the Orbit; with report of a case. By S. POTTS EAGLETON, M.D., of Philadelphia. Reprint, 1894.

Tone-Blindness (Klang-Farben-Blindheit). and the Education of the Ear. By J. MOUNT BLEYER, M.D., of New York. Reprint, 1894.

*The Hygeia*, a "journal devoted to hygiene and curative medicine," is a new aspirant emanating from Tyler, Texas. In a salutatory of mythological flavor the editors claim Eastern Texas as their virgin territory; may success justify their temerity.

## Miscellany.

**PREVENTION NOT THE FORTE OF ANY PROFESSION.**—Some of those writers who are so facetious at the expense of the medical profession, are now talking about the incapability of physicians to prevent or cure the grip. Did it ever occur to them that journalists record crimes but are not able to prevent them, and that lawyers are eternally engaged in litigation? Why do not the journalists and lawyers prevent crime and litigation? Just as well might this be asked as that physicians should prevent epidemics.—*The (N. Y.) Polychrome.*

**ATONED WITH HIS OWN LIFE.**—This is the headline in the newspapers to a report of the suicide of a physician in Sullivan County, N. Y. The doctor attended a patient through and after confinement, and three weeks later diagnosed eczema in this patient as smallpox. Possessed with the thought that he had exposed the town to a small-pox epidemic through not isolating the patient earlier, he took morphine and died, leaving an open letter of apology. It was certainly an unusual case from every point of view.

**TETANUS ANTITOXIN.**—At the March 13th meeting of the Medico-Legal Society of New York, Dr. Paul Gibier, Director of the New York Pasteur Institute, delivered a ninety minute lecture, based on his discovery and production of tetanus antitoxin, from bacilli cultivation, with which he had both prevented and cured tetanus. He illustrated his remarks with specimens of the bacillus under the microscope. These germs, according to Dr. Gibier, are found in all parts of the world; and the horse is oftenest infected, because the ordinary filth of stables offers the best field for the propagation of the germs. Dr. Gibier spoke extemporaneously, but subsequently wrote out the full lecture and it will be published shortly.

**ANTITOXIN AROUSES ANTAGONISMS.**—At a crowded meeting of the New York Academy of Medicine, April 4th, the diphtheria antitoxic serum question was fully discussed, developing some very heated and personal arguments. Drs. Biggs and Park, the well-advertised serum experts of the N. Y. Health Board, favored the meeting with roseate reports on the production and use of the serum, and were followed by other gentlemen interested in the question. The sensation of the evening was a violent attack on the remedy, and particularly on the Bacteriological Department of the N. Y. Health Board, by Dr. J. E. Winters, Professor of Diseases of Children in the University Medical School; he explained his disappointment with the serum treatment, questioned its efficacy, and then assailed the work, routine and reports of the department. The speaker was eloquent, with facts and statistics analysed and ready to utter in logical order, and—having a large portion of the audience in sympathy with him—he carried the discussion with most points in his favor. The complete report of this meeting will make interesting reading; and very likely there will be further expressions of opinion as a sequel. It looks much like "the P. and S. against the rest of the profession."

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## Original Articles.

### *TUBERCULAR INFECTION OF THE PERITONEUM, AND ITS TREATMENT.*

By J. GARLAND SHERRILL, M.D.,

Demonstrator of Surgery in the Hospital College of Medicine, Visiting Surgeon to the Louisville City Hospital, etc.

Tubercular infection of the peritoneum may occur as a secondary manifestation to tuberculous processes elsewhere in the body, or the peritoneum may be the primary focus of infection. It is especially in the latter form of the disease in which a fairly good prognosis can be made. Those cases which develop in connection with tuberculous processes in other parts of the body are only benefited temporarily, if at all. The pathology of this condition depends upon infection of the peritoneum by the tubercle bacillus. Why this membrane should be first affected by this condition cannot be positively determined.

The changes which take place after this form of infection are not always the same. Frequently the intestines become thickly studded with soft granulations, very small and pale; and between coils of the intestines we find poured out a thick serum. There may be found upon examination no adhesions between the surfaces, in which case there is considerable fluid present. In other cases the intestines may become glued together at certain points, circumscribing the diseased portion of the peritoneum. There may also be more or less ascites: this constitutes what is known as the ascitic form of the disease. In other cases there may be very little or no fluid

within the peritoneal cavity, and the granulating surfaces become covered with a layer of fibrin which firmly unites them together after a time. This, while often tending to check the disease, very frequently results in intestinal occlusion. In some instances an ulcerative process is set up in the peritoneum, and considerable destruction of the membrane occurs. This form may be dry or suppurative. When suppurative in character, the pus may be general or circumscribed in one or more foci.

Tubercular peritonitis may be acute, subacute, or chronic, in accordance with the character of its symptoms. There is one symptom which is always present, but in varying degree, and that is pain. It is never so acute, however, as in septic peritonitis. Accompanying this pain there is usually a soreness, which the patient is inclined to attribute to an injury received some time previously. Usually there is a sense of fulness in the abdomen; some elevation of temperature, say to 101 or 102 ° F.; the patient complains of anorexia and some derangement of the intestinal functions. There is also often a history of night-sweats. As the amount of fluid increases, symptoms of pressure upon the thoracic viscera develop; dyspnea often becomes distressing, the patient being unable to assume the recumbent posture with any degree of comfort.

Formerly the treatment of this condition consisted in removal of the fluid by aspiration, and injecting into the cavity some medicinal agent, such as tincture of iodine. Some of the later authorities recommend abdominal section and drainage in those cases in which the ascites is circumscribed.



The majority of writers upon this subject, however, favor this procedure whether the dropsy be circumscribed or general. In this connection the following case, briefly reported, may be of interest:

On November 15, 1894, I was called to see Wm. G., æt. fifty-four years, who had been complaining for about three weeks. He had been suffering with pain in the abdomen, which nothing would relieve, and also a sense of fulness and uneasiness. When I saw him he was sitting up in bed, breathing with great difficulty; expression pinched and anxious. Upon examination I found the abdomen considerably distended with fluid; there was no evidence of edema in any other part of the body, nor had there been at any time a history of such a swelling. The fluid in the abdominal cavity could evidently be due to only one of four things, viz.: tubercular peritonitis, which I suspected from the pain; valvular disease of the heart; cirrhosis of the liver, or cancerous peritonitis. An examination of the heart excluded valvular disease; the liver gave the normal area of dulness; there were no glandular enlargements or other evidences of cancerous disease; moreover, the pain had not been sufficiently sharp to indicate cancer, and the temperature also was not that usually found in cancerous troubles.

From the conditions present I diagnosed tubercular peritonitis, and my advice to the patient was an operation, from which, however, I could offer very little hope for permanent relief, but was sure temporary benefit could be given. The abdomen was opened on November 27th, 1894, and was found to be filled with a serous fluid. The intestines were studded throughout with minute tubercles, grayish in appearance and varying in size from a very small millet seed to half as large as a grain of wheat. On the parietal peritoneum there were several larger masses of tubercle. The fluid was evacuated and the cavity thoroughly flushed with a normal saline solution. A drainage-tube was

inserted, and was allowed to remain *in situ* until all flow of serum had ceased. It was then removed and the wound allowed to heal.

Six months after the operation the patient was seen, and there had been no return of the accumulation; his temperature is normal, and he is improving in health and strength.

So far as I know this is the only case of abdominal section for tubercular peritonitis which has been performed in this city, with the exception of one by Dr. John G. Cecil, seven years ago.

A number of theories have been advanced to account for the benefit obtained by this operation, and, in my opinion, the most plausible theory of all is, that relief is due to removal of the fluid which is a very favorable culture medium for the growth of the bacilli at the temperature found within the abdominal cavity. Several cases have been reported during the past two years where decided benefit has followed this operation, and quite a number of interesting papers have been written upon the subject. Notably has Dr. Robert Morris, of New York, contributed some interesting reports.

The amount of benefit to be derived from abdominal section in tubercular peritonitis, it seems to me, should encourage all surgeons to give the measure a trial.

In the case I have reported, I will add, Dr. H. Horace Grant was present at the operation, and he will bear me out as to the correctness of the diagnosis.

408 East Broadway, Louisville.

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IMMUNITY TO TETANUS INDUCED BY ESTABLISHING STRYCHNIA TOLERANCE.—Rummo, the Italian investigator, has recently shown (*Med. and Surg. Reporter*), that strychnia, which produced physiological effects very similar to those of tetanus, may be used as a means of establishing immunity in guinea-pigs against infection of tetanus. After establishing a moderate degree of tolerance to strychnia, guinea-pigs were injected with tetanus culture, which was found to be ineffective in most cases, only slightly operative in others, while the controls all died.

*DIET FOR DISEASE (Diabetes Mellitus).*

By JOHN AULDE, M.D.

Some time ago the writer conceived the idea of publishing a series of practical articles, not too scientific, on the subject of diet, believing that they might be of service to the profession by prompting them to give more attention to this subject. The first paper of the series, *Diet for Health*, appeared in this journal for October, 1894, and the fact that nearly one thousand reprints have been called for is fairly good evidence that the discussion is not altogether without interest.

There can be no doubt in the minds of most persons of ordinary intelligence that much sickness results from indiscretions in the matter of selecting food, and yet comparatively few people give the matter the attention which it deserves, simply because they are unable to judge of the suitability of food-stuffs when set before them.

The writer is of the opinion that diet should be considered in the same category with sanitary science, but like many other instances, those who pretend to instruct are, themselves, the greatest transgressors. The large number of persons who die suddenly, on the street, on the platform, in the drawing-room or at the dinner-table is quite sufficient to cause the members of the profession to ask themselves if they are doing their full duty towards their patients. Are they teaching their patients to make a proper selection of food-stuffs with a view to enjoy good health and long life? The frequent sudden deaths referred to lead to the assumption that there is a lack of diligence in this respect.

The increasing number of persons who suffer from some disturbance of the kidneys, has prompted me to select for the second paper of this series, *diabetes mellitus*, because, in many instances, its oncoming may be anticipated, and its actual appearance postponed, if not entirely pre-

vented, by attention to diet, even without medical treatment. I am led to make this claim by reason of the fact that this disease has usually certain distinct characteristics, easily distinguishable by the skilled clinician, who can look ahead five or ten years and guard against the approach of this insidious foe to mankind.

Although much has been written of the cause of diabetes, we are still in doubt as to whether or not it is frequently associated with a distinct anatomical lesion. Later investigations point to the liver as the principal offender, so that as soon as the pulse becomes hard and inclined to frequency, along with other symptoms pointing to derangement of arterial tension, a thorough investigation ought to be undertaken, an appropriate diet being selected for the patient in the meantime.

The following diet list has been prepared with a view to its temporary adoption during the period of investigation, and the patient should be instructed to follow it as closely as possible for a few weeks or months, the urine to be examined from time to time, and the condition of the bowels regulated—by medicinal means when necessary. It is best adapted to those of a full habit, usually business or professional men, who have many cares and worries, and too often fail to take a sufficient amount of out-door exercise. Unfortunately, these are the very persons whom the medical man is unable to impress, and for this reason the sudden death-list is growing with alarming rapidity. The medical man usually hesitates about giving an unfavorable prognosis, owing to the danger of losing a patron, since he knows how very easy it is for a brother practitioner to overlook the threatening symptoms, especially in a new patient.

Although the starchy food-stuffs are usually contra-indicated in diabetes, they have not been entirely excluded from our list, because, as previously stated, this list is intended as a temporary expedient for preliminary investigation; it can be chang-

ed or remodelled to suit any condition, a selection being made for each day of the week, except for lunch. As the latter is a small matter for business men, it will not be difficult to decide upon what is best at the mid-day meal, but no inference should be drawn that the patient is to subsist upon two meals a day.

Patients threatened with diabetes mellitus should not be limited as to liquids, but they must be properly instructed as to the proper time to take liquids. Thus, I have intimated that the liquids should be taken towards the close of the meal, and that in addition to tea or coffee, carbonated water may be drunk. Since these patients usually suffer from excessive thirst, I have arrived at the conclusion that this thirst is not all due to the disease, but is to a considerable extent caused by the drinking of water with the food ingested; and by taking plenty of water *midway* between meals, preferably an alkaline water, this thirst can be measurably allayed. Moreover, the alkaline water serves to change to some extent at least the reaction of the blood, enabling it to carry more oxygen, thus materially enhancing the elimination of waste products through improved internal respiration.

### DIET LIST.

#### MONDAY.

(*Breakfast*)—Broiled sirloin steak and water-cress.  
Baked potatoes.

Eggs, soft boiled, or poached.

Eat dry toast, or stale bread with eggs.

Hominy grits with cream—no sugar.

A cup of coffee to be taken at the close of the meal—with plain or carbonated water if desired.

(*Dinner*)—Clam broth—clams to be taken out.

Roast lamb.

Stuffed potatoes.

Lettuce.

Fresh or stewed tomatoes—thicken with stale bread.

(*Dessert*)—Baked custard, with a cup of tea or cocoa—with plain or carbonated water if desired.

#### TUESDAY.

(*Breakfast*)—Broiled lamb-chops and water-cress.  
Baked potatoes, creamed.

Eggs, soft boiled, shirred or poached.

Eat dry or stale bread with eggs.

Cream toast (two-thirds cream—one-third milk).

Coffee, with a little plain or carbonated water if desired.

(*Dinner*)—Chicken broth with vermicelli.

Stewed chicken, with cream dressing and parsley.

Stewed onions.

Apple sauce, or fried apples (fried in butter).

Green peas.

Baked potatoes.

(*Dessert*)—Junket, make from renine, with cream and sponge cake.

Tea, or cocoa, with plain or carbonated water.

#### WEDNESDAY.

(*Breakfast*)—Broiled mutton chops and water-cress.

Baked potatoes.

Eggs, soft boiled, shirred or poached.

Eat dry toast or stale bread with eggs.

Hominy grits with cream—no sugar.

Coffee, with a little plain or carbonated water.

(*Dinner*)—Chicken broth, with rice and milk.

Roast beef.

Stuffed potatoes.

Asparagus.

Green peas.

Stewed rhubarb.

(*Dessert*)—Calf's-foot jelly, or gelatin, with cream and sponge cake.

Tea, or cocoa, with plain or carbonated water, as desired.

#### THURSDAY.

(*Breakfast*)—Broiled shad and water-cress.

Baked potatoes.

Eggs, soft-boiled, or omelet.

Eat dry toast or stale bread with eggs.

Cracked wheat, with cream, no sugar.

Coffee, with plain or carbonated water as desired.

(*Dinner*)—Beef broth.

Roast mutton and currant jelly.

Creamed potatoes.

Spinach.

Green peas.

Sweet corn (Honey-drop).

(*Dessert*)—Tapioca, with apples or peaches and cream.

#### FRIDAY.

(*Breakfast*)—Broiled sirloin steak and water-cress.

Creamed potatoes.

Dry, buttered toast.

Eggs, soft-boiled, shirred or scrambled.

Hominy grits and cream, no sugar.

Coffee, with plain or carbonated water.

(*Dinner*)—Mutton broth, with rice and vegetables, strained.

Sweet breads, with cream dressing and parsley.

Stuffed potatoes.

Green peas.

Asparagus.

(*Dessert*)—Charlotte Russe, or bread pudding.

Tea or cocoa, with plain or carbonated water.

#### SATURDAY.

(*Breakfast*)—Calf's liver.

Baked potatoes,

Eggs, scrambled in butter.

Dry, buttered toast.

Cracked wheat, with cream, no sugar.

Coffee, with plain or carbonated water.

(Dinner)—Tomatoe soup.  
Boiled leg of mutton, cream and egg dressing.  
Lettuce.  
Brussels sprouts.  
Stewed tomatoes.  
Baked apples and cream.  
Tea or cocoa, with plain or carbonated water.

## SUNDAY.

(Breakfast)—Broiled shad, or other fish broiled.  
Lamb chops and water-cress.  
Creamed potatoes.  
Cracked wheat and cream, no sugar.  
Coffee, with plain or carbonated water.

(Dinner)—Mutton broth, with rice.  
Roast chicken.  
Stuffed potatoes.  
Stewed rhubarb.  
Green peas.  
Lettuce.

(Dessert)—Ice-cream and lady-fingers, with a cup of coffee, and plain or carbonated water—all liquids to be taken at the close of the meal.

### PRIMARY IDIOPATHIC PERICHONDRI- DRITIS OF THE AURICLE.\*

By T. C. EVANS, M.D.,

Lecturer on Ophthalmology, etc., Kentucky School of Medicine, Louisville, Ky.

Mr. President and Fellows of the Society: Through the kindness of this patient, Mr. W., I have the opportunity of showing to you an interesting case of a very rare disease—*Primary Idiopathic Perichondritis of the Auricle*. Mr. W. came to consult me on March 17, 1895, and gave the following history: Five or six weeks prior to the time he came to see me, he noticed a circumscribed swelling of the anterior surface of the right external ear; the swelling gradually increased, the ear became hot and painful. The pain was especially noticeable when he retired, as he had for years been accustomed to sleep on the right side. Three weeks prior to the time he came to see me he consulted his family physician, who detected fluctuation in the tumor and made one or two small incisions, and evacuated a considerable quantity of serum or pus; the after-treatment consisted of hot applications and antiseptic dressings.

\* Read before the Louisville Clinical Society and contributed to the AMERICAN THERAPIST exclusively.

At my first examination I found the proximal portion of the horizontal crura of the anti-helix the seat of an ulcerative process extending down to, and involving, or at least exposing, the cartilage. The ulcer occupied the site of the incision, and was about one-fourth of an inch in diameter with irregular shelving edges. The distal portion, the horizontal crura of the anti-helix was much swollen and presented a rough, nodular appearance. The vertical crura, as well as the anti-helix proper, were appreciably swollen; the entire auricle, with the exception of the lobe, was much reddened and abnormally sensitive to both heat and cold. There was considerable soreness or stiffness of the muscles of the right side of the neck.

Perichondritis of the auricle extending from the auditory canal sometimes follows inflammation of the middle ear. But primary perichondritis of the auricle is a rare affection, developing always on the anterior surface of the auricle without assignable cause. The pathological condition seems to be an inflammatory process with an effusion of serum between the perichondrium and cartilage dissecting the perichondrium loose over a greater or less extent of surface according to the amount of effusion. The effusion soon becomes purulent, and in course of time opens through the integument of its own accord.

Perichondritis may be mistaken for the othematoma, a peculiar condition of the auricle occurring most frequently in the insane, but not confined to this class, as was formerly supposed. Notwithstanding the fact that perichondritis and othematoma have been confounded, and by authors classified under the same head, they are certainly distinct affections, and a mistake in diagnosis could happen only in the late stages of the disease in the absence of a reliable history. In the othematoma the formation of the tumor is sudden and precedes the inflammatory condition. An incision into the tumor shows it to be a true hematoma, while

in the perichondritis the development of the tumor is gradual. An incision shows the presence of a synovial-like fluid or pus.

Perichondritis might also be mistaken for epithelioma, but the microscopic appearance is usually sufficient to make the differentiation. In epithelioma the skin loses its suppleness and becomes rough and uneven, while in perichondritis the skin is either smooth or capable of being made smooth by tension, and if any unevenness exists it can be shown to be due to underlying structures. In doubtful cases the diagnosis of epithelioma could be made by the microscope. The prognosis, aside from the pain and inconvenience of the patient, which is by no means inconsiderable, has reference almost entirely to the degree of deformity which will likely result. This will depend largely on the amount of the exudation and its concomitant separation of the perichondrium from the cartilage. Where the exudation is small, or it has been incised early, the prognosis is good. The ulcerative process is chronic in character, lasting from one to three months. In the case exhibited, I think the deformity will hardly be appreciable.

The treatment consists of free incision, the local application of Tr. iodine, massage and pressure by means of bandage. In the case reported, I have been unable to use the bandage as the patient's business makes it impossible. Under the application of iodine the swelling of the auricle has almost entirely disappeared, but there has been very little change in the ulcerative process.

#### DISCUSSION.

Dr. I. N. Bloom: Would not the application of caustics bring about a clear cicatrix in such cases?

Dr. T. C. Evans: They are not recommended in text books for treatment of these cases. I did not try caustics in this case, and it is the first case that has been reported here as far as I know.

Dr. T. P. Satterwhite: General inflammation about the ear is quite common, but this is the first time I have witnessed an ulceration of the external ear. I think it would be very important for Dr. Evans to have a microscopic examination made to determine if the condition be not epithelioma.

Dr. J. M. Mathews: I wish Dr. Evans, in closing the discussion, would enlighten us as to the differential points between the condition present in this case and epithelioma.

Dr. S. G. Dabney: It seems to me the history of this case would make epithelioma rather improbable. Epithelioma does not usually begin with such acute inflammation, and is not followed by breaking down so soon. I have seen several cases of perichondritis, but not involving the cartilage of the ear proper, therefore not making an ulcer as deep as the one before us. I have seen them several times where there was localized inflammation of the perichondrium following diffuse inflammation of the auditory canal, not complicated with disease of the middle ear. I remember one, a young lady living in the southern part of the city, who had a most intense attack, one after another. In that case, and in all the others I have seen, the ulcerated condition of the ear improved much more rapidly after the patients had been placed upon quinine, tonics, etc. One mistake often made in the treatment of such cases is, that it is very common to treat them by means of poultices, which tends to soften the cartilage, causing greater breaking down. In addition to the differential points Dr. Evans mentions between the hematoma, which occurs so often in the insane, and cases like this, the contents of the tumor itself are of considerable importance. In that condition the contents consist mainly of blood; in cases such as the one before us it is mostly serous. I think syphilis would be worth inquiring into. As the ulcer is not very extensive I think recovery will take place without deformity.

Dr. T. C. Evans: In regard to Dr. Mathews' question: I am glad that Dr. Dabney answered it for me, which he has done quite fully. We rarely find epithelioma beginning with an acute inflammation, with burning and extreme heat of the ear, so noticeable that you can feel the localized elevation of temperature. Acute inflammation with the formation of a lump or pus sac, and the rapid ulceration after incising the sac, as manifested in this case, would hardly occur in epithelioma. Epitheliomata of the ear are usually very slow in their progress. Another point made by Buck, who speaks at length, is, that while epithelioma and perichondritis are similar in a great many ways, he always finds in epithelioma of the ear a roughness of the skin which cannot be made smooth. While in some cases of perichondritis we find an apparent roughness of the skin, it can be entirely straightened or smoothed out by tension on it, showing that the roughness is due entirely to the underlying structures and not to the skin itself. In doubtful cases, of course, it is always best to submit a section to microscopic examination.

In regard to syphilis: Of course that has always to be taken into consideration. Tertiary syphilis of the auricle is an exceedingly rare affection, more so than perichondritis. I think, also, that the inflammatory process in this case is more marked than it would be in syphilis of the auricle. Moreover, the edges of this ulcer are more marked than we would find in syphilis. Syphilitic ulcer is characterized by a very smooth, round border, which this does not possess. On that point, and exposure of the cartilage, I based my diagnosis, and think I am entirely correct.

Dr. Cantrell believes that *scarification* is the treatment for *acne rosacea*. He freezes the part with a rhigolene spray or ethyl chloride, and freely scarifies with a five-bladed knife. This treatment gives prompt relief. — *Phila. Polyclinic*.

## PHENOCOLL HYDROCHLORIDE IN MALARIA.\*

By Dr. RIBET, Arzew, Algeria.

Since the discovery of quinine, and its rational application to the treatment of malarial conditions, many attempts have been made to substitute for this drug— notwithstanding its great value—other products that might advantageously take its place.

It were certainly idle to name here all the remedies tried for this purpose, and it will suffice to say that, notwithstanding the few successes reported by experimenters, the failures have been frequent enough to cause their abandonment, and that quinine has remained in the mind of the whole medical body as the only sure remedy to be opposed to malarial infection.

While this was true but a day since, will it remain true to-morrow? I believe not; and it is with the greatest confidence that, following my Italian confreres, I present to the French practitioners a new drug, hydrochloride of phenocoll, which appears to me to deserve the closest attention in the therapy of paludean affections, as much by its incontestable anti-malarial virtues as by the fact that absolutely no harmful effects follow its absorption.

I certainly have no desire to place the quinine salts on trial, but it seems useful to remind the reader of some of the disagreeable effects that follow their use: tinnitus aurium often lasting a very long time, severe gastric pains, very painful erysipelatoid eruptions, are all certain indices of a real intoxication without which, unfortunately, we can hardly obtain durable results. At times, also—not to say, often enough—quinine appears to be of a discouraging inefficacy, so much so as to enable one of my patients to tell me that

\* Furnished by author for simultaneous publication in *Revue de Thérapeutique*, Paris, and THE AMERICAN THERAPIST.

"for him, quinine amounted to nothing at all." Finally, there are many people who show true idiosyncracies in regard to quinine, and in whom even small doses of the drug may cause serious accidents.

Hydrochloride of Phenocoll (amido-acetparaphenetidin) is a white, crystalline powder, of neutral reaction, soluble in seventeen parts of cold water; its sweetish-bitter taste is not disagreeable, and may easily be concealed in a mixture, an evident point in its favor, especially in pediatric therapy.

After the first experiments of Kobert and von Mering, in 1891, had shown the absolute harmlessness of this substance (the latter being unable to cause any untoward reaction in a large rabbit with a dose of 1.50 gm. of phenocoll), Hertel and Herzog successfully utilized its antipyretic properties in the treatment of many febrile affections, and Gerhardt, in 1892, was able, in his important work, to ascertain its precise indications as an anti-febrile, an anti-neuralgic and an anti-rheumatic substance. But, under the special point of view which I am taking, namely, its malarial property, it is especially in Italy that the first data were obtained.

Dr. Pietro Albertoni (of Bologna), published the first successful results, which were soon confirmed by a number of others who followed his example, chief among whom I may mention Drs. Pratti (of Ferrara), Novi (of Ravenna), Venturini (of Grosseto), Crescimano (of Ancona), Matarazzo (of Syracuse), and Prof. Cercello, of the University of Palermo. Towards the end of the year 1893 appeared two important memoirs in the *Rassenga Medica*, of Bologna, one by Dr. Vittorio dall'Olio, and the other by Dr. Gicognani. Finally Pucci, quite recently, at the Congress of Rome, spoke in favor of the use of Phenocoll in malaria.

Last of all, we have become acquainted with the observations made by Dr. Clemente Ferreira, in Brazil, who has also recorded a number of successful cases.

To this long list of favorable observations, which should already have caused the admission of phenocoll to the field of current therapeutics, I will add twenty new observations which are absolutely conclusive. I have taken care to submit, as a rule, none but marked and chronic cases of malaria to this treatment; the few exceptions were in cases which, though of recent origin, showed, by their clinical form, an absolute picture of severe malarial intoxication.

Observation I.—A. H., æt. 28; in Algeria since 1891. Taken with malaria on Sept. 9th, 1894. Chills, fever, perspiration; the attack begins at 3 P.M. Patient first seen on Sept. 14th; general muscular pain, cephalalgia, tongue coated, sub-icteric color of conjunctivæ. Spleen slightly hypertrophied, painful on pressure. Gave 1.25 gm. of phenocoll; notwithstanding this there was a slight attack at about 9 P.M., but it was shorter and less violent.

Sept. 15. Phenocoll 1 gm.; no febrile access.

Sept. 16. Phenocoll 1.25 gm. Slight febrile movement at 10 P.M.

Sept. 17. Patient feeling much better; tongue much better, appetite seems to be returning; splenic pain much diminished. Phenocoll 1 gm.

Sept. 18. Patient had a good night; no fever yesterday evening; urine slightly colored. Phenocoll 1 gm.

Sept. 20. Absolute apyrexia; the patient feels entirely well.

This patient was kept under observation until Oct. 5. He had no further febrile attacks and was able to work.

Obs. II.—Maria N., æt. 20, is suckling a baby 5 months old. Comes from one of the most unhealthy points of the surrounding country. Febrile attacks returning every other day, at the same hour. Has taken quinine for about a week; besides the fact that she still has attacks, the medicine makes her ears ring so that she refuses to take any more.

Sept. 14. Patient seen in the middle of an attack; temperature 39.9° (103.8° F.). It began at 6 P.M., and ended at mid-day with profuse perspiration.

Sept. 15. Nothing to note.

Sept. 16. The patient has taken 1 gm. of phenocoll during the night, in two doses; no fever in the morning; she is taken with an access at 2 P.M. Chills slight, the attack is milder and shorter.

Sept. 17. The patient attends to her occupations.

Sept. 18. Took 1.50 gm. of phenocoll during the night. No attack; urine rather dark.

Sept. 19. Nothing to note.

Sept. 20. Patient has taken 1.5 gm. of phenocoll during the night, for the last time. She has no further attack and feels quite recovered. I may add that during all this time she has suckled her child without any inconvenience to the latter.

Until this day, Oct. 20th, the patient has had no more attacks.

Obs. III.—Francoise C., æt. 11. Malarial for two years back; quinine has been employed

with success. Now has typical quotidian attacks; has a few concomitant phenomena due to growth, such as juxta-epiphyseal pains, slight cardiac hypertrophy.

Sept. 14. At 6 A.M. a violent febrile access, ending at midday with profuse sweat.

Sept. 15. Child took 0.75 gm. phenocoll during the night. No fever in the morning, but a mild attack at 1 P.M.

Sept. 16. Same dose given at night. Patient found out of bed, is hungry; at 5 P.M. a slight febrile sensation.

Sept. 17. Phenocoll 1 gm. this morning. No attack during the whole day, the pains in the bones much diminished. Biphosphate of lime.

Sept. 18. Same dose this morning. Complete apyrexia, appetite returning.

Sept. 19. Phenocoll 75 cg. Decided improvement. No fever.

Sept. 20. No phenocoll. Good day, but at 6 P.M. a fairly sharp access.

Sept. 21. Phenocoll 1 gm. No attack.

Sept. 22. Phenocoll 75 cg. No fever.

Sept. 23. Phenocoll 50 cg. Child is very cheerful, moves about, is merely rather anemic.

The drug was then stopped, and, up to Oct. 25, there have been no further attacks.

Obs. IV.—Vincent A., æt. 26. Habitually in good health; no hereditary taint.

Sept. 13. At 11 P.M., violent chills, sharp fever, and towards morning abundant sweat.

Sept. 14. Fresh attack at 2 P.M.

Sept. 15. Patient seen for the first time. Tongue coated, cephalalgia and severe splenic pain. Phenocoll 1.5 gm. at 10 o'clock. No attack during the day.

Sept. 16. Night good. General muscular pain; conjunctivæ show a sub-icteric tint. Phenocoll 1.5 gm. A quarter of an hour after taking the last powder, the febrile movement begins and ends at 5 P.M. with profuse sweat.

Sept. 17. Very bad night; insomnia, cephalalgia and violent splenic pain; bilious vomiting, diarrhea. Phenocoll 1.75 gm., and application of tincture of iodine over the spleen. The rest of the day is pretty comfortable; headache.

Sept. 18. Sulphate of magnesia 40 gms. in the morning; phenocoll 1.75 gm. from 11 to 2 o'clock; very light attack at 5 P.M.

Sept. 19. Night good; icterus fairly marked. Phenocoll 1.5 gm.; no fever.

Sept. 20. Lassitude very marked. Phenocoll 2 gms. No fever, the patient gets up.

Sept. 21. Very good night; patient feels much better; icterus becoming less. Phenocoll 2 gms.

Sept. 22. Phenocoll 1 gm.; the appetite is returning, and strength augmenting.

The patient became better and better; resumed work Oct. 1, and until now, Oct. 25, has had no further attack.

Obs. V.—Anna R., æt. 27. Nurses a child 17 months old.

Sept. 13. At 7 P.M. a typical malarial seizure, which the patient describes very clearly.

Sept. 14. No attack; the patient took two glasses of Hunyadi water in the morning.

Sept. 15. At 3 P.M. a new attack, lasting till 8 P.M., when I saw the patient for the first time. General lassitude, cephalalgia, spleen tender on pressure.

Sept. 16. No attack, patient attends to her work.

Sept. 17. Phenocoll 1.25 gm. in the morning;

no fever, but in the afternoon a sensation of extreme weariness.

Sept. 18. Nothing of note.

Sept. 19. This is the day of the fever. Phenocoll 1.5 gm.; fever absent; patient feels better; no appetite.

Sept. 20. The patient feels very well; nurses her child without detriment to the latter's health.

Sept. 21. Phenocoll 1 gm.; no attack.

Sept. 22. The patient is quite well. The phenocoll is stopped, and until this day, Oct. 25, there has been no return of the trouble.

Obs. VI.—Joseph M., æt. 24. Nurses an 8 months old child. Three years ago had paludean attacks at Ste.-Barbe-du-Tléla; they lasted for 14 months with more or less prolonged remissions. Treated by quinine. She states that she had very violent ringing in the ears.

Sept. 15. At midday, chills, then fever, and at 4 P.M. abundant sweat. During the attack violent pain in the splenic region and the breast; paroxysmal cough.

Sept. 16. Night fairly good, headache, spleen somewhat enlarged. Phenocoll 1.25 gm. at 9 A.M.; no fever.

Sept. 17. Patient, still much wearied, feels better; splenic pain less severe than yesterday. Phenocoll 1.25 gm. No attacks during the day.

Sept. 18. Patient out of bed; numerous vesicles of herpes upon the lips and nostrils; appetite returning. Phenocoll 1 gm. No fever.

Sept. 19. Patient feels very well; urine normal; no more splenic pain; the secretion of milk remains abundant and the nursing does not appear to suffer. Phenocoll 1 gm. No attack.

Sept. 20. The patient is quite well; attends to her customary pursuits. Phenocoll 1 gm.; no fever.

Sept. 21. Phenocoll stopped: The improvement continues, and the patient up to writing, Oct. 25th, has had no further febrile access.

Obs. VII.—Louis F., an apprentice. Born in Algeria. Already attended by me in the month of August for malarial attacks of a tertian bilious form. Hydrobromate of quinine and mixture containing the arseniated extract of cinchona.

Sept. 14. At 3.30 A.M., a light access; some bilious vomiting.

Sept. 15. Patient is able to go to the workshop.

Sept. 16. In my presence, has a violent attack; abundant emesis.

Sept. 17. Patient went to the workshop.

Sept. 18. Early in the morning, took 1.25 gm. of phenocoll, in two doses. At 8.30 P.M., some yawning and a slight sensation of cold. No access during the day.

Sept. 19. Patient felt well, went to work.

Sept. 20. Phenocoll 1.5 gm. in the morning. Patient was able to go to work; a little lassitude.

Sept. 21. Feels normally.

Sept. 22. Phenocoll, 1.25 gm. in the morning, able to go to the work.

Sept. 23. Decidedly better, strength returning.

Sept. 24. Phenocoll, 1.25 gm. in the morning. No attack, the patient stops calling on me.

Sept. 30. New attack; vomiting.

Oct. 1. Nothing of note; boy feels well.

Oct. 2. A fresh and more violent attack.

Oct. 3. Phenocoll 1.50 gm. No fever.

Oct. 4. Boy goes to the workshop.

Oct. 5. Phenocoll 1.5 gm.; no fever.

Oct. 6. Patient feels quite well.

Oct. 7. Phenocoll 1 gm.; no fever.

Up to the present time the boy has had no further febrile accesses, and is in good health.



Obs. VIII.—George F., æt. 14. A brother of the preceding patients. Convulsions during childhood. On August 19th, I was called to attend him during a typical malarial attack. Hydrobromate of quinine and mixture with arseniated extract of cinchona. The febrile accesses continued notwithstanding this, and the boy, by my advice, left Arzew for about ten days.

Sept. 15. At 2 P.M. a febrile access, with slight comatose phenomena. Spleen painful. Temp. 39.8° C. (103.6° F.)

Sept. 16. Feels pretty well. At nine o'clock phenocoll 1 gm. Notwithstanding this, at noon there occurs profuse bilious vomiting. High fever. Temp. 39.6° C. Splenic pain.

Sept. 17. Phenocoll 1 gm. At 2 P.M. slight febrile attack; headache.

Sept. 18. Phenocoll 1 gm. At 2 P.M. a few small chills; in the evening the boy eats well.

Sept. 19. Phenocoll 1.25 gm.; no fever.

Sept. 20. Feels better; splenic pain nearly gone. Phenocoll 1.25 gm.

Sept. 21. Phenocoll 1.25 gm.; no more fever; the boy feels quite well.

Sept. 22. The child goes out and to his work. No phenocoll, no more fever.

Has shown no further malarial symptoms to the present time.

Obs. IX.—Leonie W., æt. 23. Of lymphatic temperament. When 14 years old, at Marnia, had malarial trouble lasting for two years, with more or less marked remissions. In January 1892 had violent facial neuralgia, for which I successfully gave valerianate of quinine. In 1894, in the month of August, the neuralgic pains returned with periods of exacerbation recurring at the same hours. Valerianate of quinine; cured.

Sept. 16. At 9 A.M. a violent febrile seizure. Temp. 39.8° C. Very violent cephalalgia, with a neuralgic point on the right side.

Sept. 17. Phenocoll 1.25 gm. were taken in the morning. No fever, headache. Abundant salivation. At 3 P.M. a slight chill, followed by heat. Temp. 38.9° C.

Sept. 18. Took this morning 1.75 gm. of phenocoll. No fever; no more headache.

Sept. 19. Phenocoll 1.5 gm. No attack. The patient feels quite well.

Sept. 20. Phenocoll 1 gm. No fever.

Sept. 21. No phenocoll. Day good, but towards evening occurs a facial neuralgic pain on the right side.

Sept. 22. Phenocoll 1.5 gm. given again. The day is passed without trouble.

Sept. 23. Phenocoll 1.5 gm. No more neuralgic pain.

Sept. 24. The phenocoll is definitely stopped, and the patient, whom I have frequently seen again, has remained until now free from neuralgia and fever.

Obs. X.—Claude F., æt. 35, a workman in the shops of the F. A. Co. Twelve years ago had violent accesses of fever when the workshops of the company were at Debrousseville. Had to be admitted to the military hospital of Arzew. Hypodermic injections of quinine. Since 1884 has shown no manifestations of malaria.

Sept. 14. Slight sunstroke, chills, fever, then abundant sweat.

Sept. 15. The patient is able to go to the workshop.

Sept. 16. At 7.30 A.M. a very violent attack. Severe cephalalgia. Temp. 39.9° C. Tongue coated. Splenic pain.

Sept. 17. Sulphate of magnesia 45 gms. No fever.

Sept. 18. Phenocoll 1.5 gm. at 4 A.M. The attack begins at 6.30; bilious vomiting; hematuric urine. Violent cephalalgia persists.

Sept. 19. The night has been good. The patient is out of bed; there is no fever.

Sept. 20. Phenocoll 1.75 gm. The patient, without fever, feels very tired. Bilious vomiting at 11 o'clock.

Sept. 21. Pretty fair day; no fever; icteric complexion. Absolute anorexia.

Sept. 22. Phenocoll 2 gms. No fever. Urine diminished and has returned to a normal color.

Sept. 23. No fever. Milk diet. Malarial anemia.

Sept. 24. Phenocoll 1.75 gm. No fever; headache; insomnia. Gave a little bromide of potassium and iodide of sodium.

Sept. 25. General lassitude.

Sept. 26. Phenocoll 1.75 gm. Absolute apyrexia.

Sept. 27. The patient, who is very anemic, goes away to spend a few days at Saint-Leu. He has no more fever, and is able to resume his work on Oct. 18, at the workshops of the company.

Obs. XI.—Sin..., æt. 48, a fitter in the workshops of the F. A. Co. In 1886 he was an engineer in the Railroad Company from Dakar to Saint-Louis (Senegal). Very violent attacks of fever, of the bilious type. In spite of quinine, these attacks persisted so that he was compelled to leave Senegal after a stay of nine months. He then came to Arzew, where he had slight attacks every two or three months, in spite of treatment by quinine and arsenic. Since about ten days he is suffering from slight febrile movements with chills and hepatic and splenic pain. Spleen and liver enlarged.

Sept. 17. 45 gms. of sulphate of magnesia in the morning. Phenocoll 1.5 gm. at night.

Sept. 18. The patient has slept better, has less muscular pain than formerly. Phenocoll 1.5 gm. at night.

Sept. 19. The night has been better still, no more insomnia; no more painful dryness of the skin. Phenocoll 1 gm. at night.

Sept. 20. The amelioration is marked. Phenocoll 1 gm.

Sept. 21. The patient feels no more discomfort of any sort.

I have often seen this patient again, and he has had no further trouble.

Obs. XII.—Pierre d'H., æt. 39, a fitter in the workshops of the company. In 1879, at Debrousseville, where the workshops then were, he had violent malarial attacks; comatose access lasted, it is stated, for fifty hours. Is at Arzew since 1887. Has used a great deal of quinine, without being able to stop his trouble. There is marked deafness. Since about ten days feels very tired; chills and fever, and then perspirations during which he feels a relative degree of comfort. Spleen large and tender, sub-icteric complexion.

Sept. 18. Phenocoll 1.75 gm.

Sept. 19. Better night, feels easier. Phenocoll 1.5 gm.

Sept. 20. No more malaise, no chills. Phenocoll 1.5 gm.

Sept. 21. Phenocoll 1.5 gm. Has had a very good day.

Sept. 22. No more lassitude: feels stronger. Phenocoll 1.5 gm.

Sept. 23. The patient no longer feels ill at all. From that period on to the time of writing, Oct. 30, he has felt no more of the troubles for which he had sought my advice.

Obs. XIII.—Juliane G., æt. 28. Workman in a factory. Seven years ago, at Sainte-Barbe-du-Tlelat, had violent attacks of fever, which lasted for ten consecutive months notwithstanding the use of quinine. Lives in Arzew since one year. I was called to attend him in the beginning of the month of August for typical quotidian attacks; hydrobromate of quinine, mixture with arseniated extract of cinchona. The attacks ceased.

Sept. 19. Fresh onset of fever; spleen painful, weakness very marked, leaden complexion. Phenocoll 1.5 gm.

Sept. 20. Apyrexia; patient out of bed, but complains of his left side. Painted with tincture of iodine. Phenocoll 1.50 gm.

Sept. 21. No febrile movement; patient feels better. Phenocoll 1.5 gm.

Sept. 22. No fever; general lassitude still very marked; splenic pain nearly gone. Phenocoll 1.5 gm.

Sept. 23. Appetite returning, but the patient is still much weakened, no fever. Phenocoll 1.25 gm.

Sept. 24. The patient feels well; but is very anemic. The phenocoll is stopped.

On Oct. 8, the patient was well enough to resume his work. He was seen again on Oct. 30, and had had no further trouble.

Obs. XIV.—Emma S., æt. 8½. I had treated her two months before for febrile attacks of the quotidian type. Hydrobromate of quinine and arseniated extract of cinchona. For the last three days has had fresh attacks always beginning at about 6 A.M.

Sept. 21. Patient seen in the evening; general muscular pain, spleen tender on pressure; no fever; perspiration has been very abundant. Phenocoll 75 cg. to be taken during the night, in three doses.

Sept. 22. Light attack. Temperature 38.6° C. Slight headache; there have been no chills.

Sept. 23. The patient has taken 1 gm. of phenocoll in four doses. No attack, the child feels fairly well and goes to spend the day at the seaside.

Sept. 24. Through forgetfulness, the child has taken no phenocoll; at 9 o'clock a light attack of short duration.

Sept. 25. Phenocoll 75 cg. during the night. No fever, the child feels well.

Sept. 26. Phenocoll 75 cg. No attack.

Sept. 27. The child is quite well.

Until Oct. 9, there were no further attacks, but upon that day the child was compelled to go to bed with violent chills succeeded by fever and sweating. Phenocoll 75 cg. was given daily for three days, and, up to this date, Oct. 30, there have been no further attacks.

Obs. XV.—D., æt. 31, a blacksmith in the workshops of the F. A. Co. A very robust man. Malarial since 1890. At that time remained for three months in the military hospital of Arzew. Quinine ceasing to have any effect upon him, Dr. Petit advised him to leave the country. He remained in Oran for about two months. Decided improvement, but still had slight accesses.

Sept. 23. A violent attack at 6 P.M.

Sept. 24. The attack stopped at 3 A.M., with violent perspiration. When I saw the patient, he was quite exhausted. Phenocoll 1.75 gm.

Sept. 25. No attack of fever yesterday, but abundant sweats at 7.30. At 2 P.M. a violent bilious attack, vomiting, diarrhea. Intense cephalalgia.

Sept. 26. The patient has severe pains in the limbs; icteric complexion. As the attacks appear to be taking on the tertian type, no phenocoll is given.

Sept. 27. Good night. Phenocoll 2 gms. No attack. The bilious diarrhea persists. Salicylate of bismuth and salol.

Sept. 28. Day good; no phenocoll.

Sept. 29. Patient is out of bed; feels pretty well. Phenocoll 2 gms. No attack. Patient eats a little.

Sept. 30. Patient is better.

Oct. 1. Patient is able to resume his work, but takes phenocoll 1.75 gm. in the morning.

Until Oct. 8, he had no further attack, but on that day was obliged to take to his bed. I again gave phenocoll in 2 gms. doses every other day for a week, giving it on this occasion in solution in sweetened water.

On Oct. 14, the patient definitely resumed his work and has remained well until now.

Obs. XVI.—Concha S., æt. 9. A weakly girl. Attack of fever a month ago, quotidian at the same hour, accompanied by violent enteralgia. Treatment by quinine stopped the attacks.

Oct. 8. A fresh attack at 11 A.M.; violent abdominal pains; no diarrhea, no constipation; splenic region tender and dull on percussion.

Oct. 9. The child took phenocoll 75 cg. in the morning; the attack appeared notwithstanding, at 11 o'clock.

Oct. 10. Phenocoll 1 gm. in sweetened water. No fever, no abdominal pains.

Oct. 11. Phenocoll 75 cg. in solution. No fever.

Oct. 12. Phenocoll 50 cg.; no fever, the child has resumed her usual cheerfulness and eats well.

Oct. 13. Phenocoll 50 cg. The child is quite well and the phenocoll is stopped.

Oct. 25. Slight return of the fever at 7 P.M.

Oct. 26. Phenocoll 75 cg. during the day; the fever does not reappear.

Oct. 27. The child has passed a good night; phenocoll 75 cg. No fever.

Oct. 28. The child is quite well. Phenocoll 50 cg.

Up to this date, Nov. 6, the accesses of fever have not reappeared.

Obs. XVII.—Jeanne F., æt. 4. Gastro-enteritis in infancy, defective alimentary hygiene. Habitual constipation.

Oct. 11. Attack of fever at 7.30 A.M. Child complains of cold, goes to bed and requests to be covered up. The mother notices that her lips have become blue. Later on her skin becomes burning hot. No sweats.

Oct. 12. No sign of fever. The child plays.

Oct. 13. Fresh attack, identical with the preceding one and occurring at the same hour.

Oct. 14. No attack. Castor oil 20 gms.

Oct. 15. The febrile seizure has anticipated its usual hour, although the child took phenocoll 60 cg. in sugared water. At nine the child wishes to get up, the attack is over.

Oct. 16. No fever in the morning. Slight febrile seizure during the day.

Oct. 17. Phenocoll 50 cg. in the morning in sweetened water. Very slight febrile movement in the evening.

Oct. 18. The child is well. Phenocoll 50 cg. No access.

Oct. 19. Phenocoll 50 cg. No fever.

Oct. 20. Phenocoll 50 cg. No fever.

Up to Oct. 26, the child remained well. Upon that day a slight access.

Oct. 27. Child well. Nothing abnormal.

Oct. 28. Phenocoll 50 cg. No fever. The child is very cheerful.

Oct. 29. Nothing of note.

Oct. 30. Phenocoll 50 cg.

Oct. 31. The phenocoll is stopped, and till the present time there has been no further attack.

Obs. XVIII.—Jean S., æt. 19. A very strong lad. Malarial since two years. The attacks have persisted for five consecutive months. Treatment by quinine. Violent ringing in the ears.

Oct. 12. At 7 A.M., a violent bilious attack. Abundant vomiting and diarrhea. Icteric hue of the conjunctivæ. Profuse sweats. Temp. 39.8° C. At 3 P.M. the attack is over. Splenic pain.

Oct. 13. Patient took 2 gms. of phenocoll this morning, divided in four doses in sugared water. No fever, general muscular pain.

Oct. 14. Took this morning phenocoll 1.75 gm. No fever, but abundant sweats. Day good.

Oct. 15. Phenocoll 1.5 gm. this morning. No fever, the patient is up and feels well.

Oct. 16. Phenocoll 1.5 gm. The patient has quite recovered and is able to go to work.

Since that time the patient is in perfect health and has had no more fever.

Obs. XIX.—Joseph K., 26 years. Lives at Sainte-Leonie, near Arzew, since twelve years. Malarial since 1891. Has been particularly ill this year, and, notwithstanding his constant use of quinine (he states that he has taken the contents of two bottles each containing 15 gms. of quinine in the space of two months) he still suffers from accesses returning every other day. Spleen swollen. Sub-icteric complexion. Paludean anemia.

Oct. 17. This is his fever day. Gave 2 gms. of phenocoll in a little sweetened water in four doses.

Oct. 18. Says that yesterday he only had a few small chills, but no fever.

Oct. 19. Phenocoll 2 gms. No febrile attack.

Oct. 20. The patient feels less tired, the appetite seems to be returning.

Oct. 21. Phenocoll 2 gms. No fever. The patient feels much better. The earthy tint of the skin seems to be disappearing.

Oct. 22. The patient feels better. He is able to go to work.

Oct. 23. Phenocoll 1.75 gm. No attack.

Oct. 24. General good condition.

Oct. 25. Phenocoll 1.5 gm.

The patient, now feeling very well, ceases the treatment.

Obs. XX.—A., æt. 50. Station Master at La Macla, one of the most unhealthy points of the district, where he has been living for 13 years. Umbilical hernia. Malarial for 10 years. In the beginning of his sojourn he had violent attacks of fever. Has taken sulphate of quinine for as much as 15 days running. Yet the attacks have returned every year, though less violent. Very painful tinnitus aurium. No longer has the same violent attacks as formerly but complains every

evening of malaise, splenic pain and chills, notwithstanding that he takes quinine in pills containing 80 cg., which formerly were sufficient. The spleen is much hypertrophied.

Oct. 21. Gave him 10 gms. of phenocoll, directing him to take 2 gms. on each of the first two days, 1.5 gm. on the two succeeding days, and 1 gm. each on the other three days.

On Oct. 29, the patient writes that he has not felt the slightest fever; and has had no more trouble.

From a careful study of the cases above related, it seems to me that we cannot fail to recognize the fact that we are dealing with a remedy which is in no way inferior to quinine in its anti-malarial properties, and which is usually, not to say always, admirably well borne even in large doses without the slightest inconvenience.

Phenocoll hydrochloride should be given in wafers or in a mixture; I may say that in the latter form its efficacy has seemed to me to be greater, and more lasting, especially in the cases where the gastric functions were impaired; this is doubtless due to its great solubility, and hence to its easier absorption; a little sweetened water has always sufficed to conceal its taste, which, I repeat, is not at all disagreeable. This is an advantage which will be appreciated by my pediatric confreres, who will find in this drug a sure anti-thermic and one easy of administration to their little patients.

It should be given in divided doses, five hours at the maximum, and three hours at least before the occurrence of the impending attack.

The daily doses should be of 2 gms. in adults, and from 50 to 75 cg. in children of 4 to 10 years old.

At the beginning of my experiments, I gave none but small doses of one gramme to 1.25 gm. of the drug; this should not be the rule, for, though I noted some happy results, I saw that in many of my patients I only postponed the hour of the attack, and lessened its intensity, without suppressing it altogether.

In my district, where old malarial cases are legion, and where my patients are nearly all strongly intoxicated with the

malarial poison, I was compelled early to reach doses of 2 gms., and even two and a half grammes. The efficacy of the drug then was plainly shown, and I am convinced that that is the minimum daily dose to be given to adults from the beginning; I even think that in some of our other colonies it will have to be still further increased, to avoid severe disappointments.

The drug should be used for six or seven days, or else new febrile attacks will occur after a few days of remission, since, as a matter of fact, the useful effect of the remedy appears to be of rather short duration, as has been asserted by Eichorst.

In order to prevent relapses, therefore, it will be best to have recourse to consecutive treatment, as Laveran has advised anent quinine, for the parasites of malaria, arrested in their development for a short time only, would swarm once more, and everything would have to be begun over again.

I believe, in effect, that without causing the death of the hematozoa themselves, as Golgi asserted in regard to quinine, a doctrine now recognized as being erroneous (Jaccoud, Baccelli), the hydrochloride of phenocoll causes in them such a loss of vitality that they are unable for some time to reach the phasis of sporulation, and we know (a proposition advanced by Baccelli) that "if in the blood are found hematozoa in a condition of segmentation or sporulation, one may predict an attack." This time passed by, the same hematozoa might again regain their pristine vitality, reach the phasis of segmentation, and give rise to new attacks.

I, therefore, insist particularly upon this point, *i. e.*, the absolute necessity of continuous treatments, with intervals of a week to a fortnight between each one.

Under the influence of phenocoll the attacks become less violent, shorter, and even sometimes disappear after a few doses; the cephalalgia rapidly disappears, for the antineuralgic properties of phenocoll seem to be as marked as those of antipyrin, and, finally, a fact worth not-

ing, the splenic pains, so severe in some patients, disappear quite fast, while the spleen becomes smaller.

When I state, in concluding, that I have never observed any toxic symptom, nor cyanosis, collapse, or tinnitus aurium, nor any gastric pain whatever; that I have been able to give the drug to nursing mothers without harm to their children; that the only phenomena noted have been, in a few patients, abundant perspirations, I shall have sufficiently called attention to the superior antimalarial properties of phenocoll hydrochloride. And I hope soon to see this remedy take a place in current practice and be utilized by the profession, as I am persuaded beforehand that it will afford them the best of results.

**TREATMENT OF INDIGESTION.** — In the management of cases of *digestive disorders*, in the clinic of Dr. S. Solis-Cohen (*Phila. Polyclinic*), treatment is very often begun by a thorough cleansing of the alimentary canal, either through purgation by calomel or irrigation of the intestines. After this, the patient is placed for a time upon an exclusive milk diet, the following routine being usually carried out: One dram of pancreatin and three drams of sodium bicarbonate are mixed, divided into twenty-four powders, and dispensed in waxed papers. The patient is instructed to dissolve one powder in one ounce or two ounces of cold water, and to add the solution to six or eight ounces of warm milk. The mixture is to be stirred quickly and then drank slowly during five minutes. The object of adding the pancreatin and alkaline powder is, of course, to digest the milk without calling upon the patient's secretions; but in order to avoid the unpleasant taste of peptonized milk, the artificial digestion is allowed to go on in the patient's stomach. The milk, with the digesting powder, is taken every third hour. In milder cases this plan is continued from two or three days to a week; in severer cases, for longer periods. Acute indigestion needs, as a rule, no other treatment. Chronic cases receive, later, suitable medication.

## Selections.

(From *Modern Medicine*. April, 1895.)

### THE EXTRA-CELLULAR DESTRUCTION OF BACTERIA IN THE ORGANISM.\*

By EL. METSCHNIKOFF, Institut Pasteur, Paris.

From the time of the first bacteriological studies in pathology, an effort has been made to discover by what means an invaded organism rids itself of the parasitic bacteria which have penetrated it. The supposition has frequently been made that the body is capable of producing certain antiseptic liquids by which the bacteria are destroyed, as by the use of disinfectant fluids in surgery. Prof. Emmerich, bacteriologist of Munich, especially, advanced this idea. His opinion was based upon studies of the subject made in conjunction with Di Mattei on the bacillus of swine-plague, with which rabbits were inoculated without having previously been vaccinated against this bacillus.

\* Those of our readers who have given but little attention to the subject matter appearing in these columns from time to time will be especially interested in this communication from the pen of Professor Metschnikoff, so well and favorably known for his researches in respect to phagocytosis. Attention should be directed to certain points in this controversy which will not be apparent to the superficial student, as follows:

(1) The efforts which have been made to controvert the claims put forward by Metschnikoff, attempts being conducted through purely scientific channels with a view to overthrow the doctrine of phagocytosis, so persistently advocated by Metschnikoff and his followers.

(2) The evidence advanced by Metschnikoff in rebuttal of these claims which, in the opinion of the writer, is sufficient to demonstrate that his position is well taken, since his demonstrations show conclusively that phagocytosis is, in fact, a normal activity, and in addition to this, that the mono- and multi-nuclear leucocytes are effective against bacteria even after apparent destruction by bacterial invasion.

(3) The facts in the case being admitted, namely, that bacteria are destroyed by the direct action of the multi-nuclear white blood-corpuscles (phagocytosis), and that they are likewise destroyed by the inter-cellular fluids—which

Emmerich affirmed that quantities of this bacillus injected under the skin of rabbits which had been previously rendered refractory, are destroyed in from fifteen to twenty-five minutes, or an hour or two at the most. Emmerich accordingly formulated the theory according to which the manifestation of acquired immunity must be considered as the result of a secretion of bactericidal fluids by the cells of the vaccinated organism. The bactericidal fluids were not regarded as pre-formed in the tissues, but as gradually secreted during the infection of the organism by the bacteria.

The facts which serve as a basis for this theory were later recognized as incorrect. Prof. Emmerich himself, in a subsequent work (1891), written in collaboration with Dr. Mastbaum, recognized the fact that the bacilli of the swine-plague, when injected into vaccinated rabbits, remain alive in the organism, not only from fifteen to twenty-five minutes, but from eight to ten hours.

Metschnikoff claims is due to the influence of these same multi-nuclear cells in a disorganized condition, and not to the epithelial cells—we have a very satisfactory demonstration of the claims put forward by others regarding the function of the multi-nuclear white blood-corpuscles. Thus, it has been repeatedly demonstrated that these bodies, when properly nourished, produce at least one substance (nuclein), which is harmless to the organism and yet effective against the life and multiplication of bacteria, and clinical observation has abundantly confirmed this scientific deduction. Suppose, for example, we have a patient in whom bacteria and bacterial products have enfeebled or destroyed to a certain extent the multi-nuclear white blood-corpuscles; if the theory be correct, then the artificial supply of nuclein ought to re-inforce them, increasing the resisting power of the organism to bacterial activities, and it seems strange that neither Metschnikoff nor Pfeiffer should have taken these recognized facts into consideration.

The foregoing comments form but an introduction to the interesting studies connected with nuclein medication; but with the appearance of comprehensive clinical reports such as that of Dr. Charles P. Knapp, which is reproduced herewith, it will be but a short time ere this information will find lodgment in the minds of intelligent physicians throughout the world.—EDITOR.

The theory of bacteria-killing secretions, being thus found unsupported by facts, was abandoned, but lately it has been revived by Dr. R. Pfeiffer, of Koch's Institute at Berlin, as the result of very remarkable discoveries established with the exactitude and precision which characterize his work. During his studies on experimental peritonitis in animals, produced by the vibrios of cholera, Dr. Pfeiffer noticed that in guinea-pigs well vaccinated against this germ, the cholera vibrios, when injected into the peritoneal cavity, were rapidly destroyed in the peritoneal fluid outside the cells. He observed the same extra-cellular destruction, when he injected into the peritoneal cavity of unprotected guinea-pigs, cholera vibrios together with a small quantity of serum from vaccinated animals. In both cases, the vibrios become motionless; they lose their spiral form, and are transformed into round granules resembling cocci.

The destruction progresses rapidly, and the granules finally disappear, so that the organism is free from the vibrios in a very short time—ten, twenty or thirty minutes. The liquid thus found so very destructive to bacteria, is absolutely inoffensive to other animals. We thus observe the remarkable fact that bacteria-killing substances as potent as the most violent antiseptics, are present in the body, and may be, without inconvenience, supported by the organism.

Dr. Pfeiffer believes that a bacteria-killing fluid of the peritoneum does not exist in a pre-formed state in the organism, but is secreted by the cellular elements in consequence of a special excitation produced by the injection of cholera vibrios. The source of this secretion is the epithelial cells of the peritoneum. In this view, he revives the theory of Emmerich.

After the attempts to demonstrate the presence of bacteria-killing substances in the fluids outside the cells, Pfeiffer finally succeeded in making a very interesting discovery. Like his predecessor, Prof.

Emmerich, his conclusions are directed against the theory of phagocytosis. But while Emmerich affirmed that the organism of vaccinated rabbits upsets the whole theory, Pfeiffer confines himself to the conclusion that the immunity of guinea-pigs against the vibrios of cholera is due to the destruction of the vibrios by an extra-cellular liquid, and independent of phagocytosis.

Thus in the discovery of Dr. Pfeiffer, there are two points in which we are particularly interested:

1. The phenomenon of the extra-cellular destruction of bacteria; and
2. The relation of this fact to the phagocytosis reaction of the organism.

If we inject the cholera vibrios into the peritoneal cavity of guinea-pigs in the manner indicated by Dr. Pfeiffer, we see, after ten, twenty, or thirty minutes, as stated by this valuable authority, a great number of vibrios transformed into small spheres, which are free in the transparent fluid in which few leucocytes are found. A few white cells present in the peritoneum lymph do not manifest the property of phagocytosis, and do not contain bacteria.

The facts advanced by Dr. Pfeiffer are perfectly exact, but it is a gross error to conclude from them that the leucocytes are inactive when closely observed. The facts may be thus explained: The peritoneal cavity of guinea-pigs, as that of many other animals, contains, in a normal state, a greater or smaller quantity of lymph charged with all sorts of leucocytes. The injection of Pfeiffer's mixture, composed of the serum of vaccinated animals, vibrio-cultures, and broth, creates apparent disturbances in the peritoneal lymph. The number of leucocytes diminishes to such an extent that the lymph, although turbid in a normal state, becomes quite transparent. While the small leucocytes remain unaltered, the true leucocytes, polynucleated and mononucleated, accumulate in masses and are deposited upon the surface of the abdominal viscera.

The damage to the leucocytes is also manifested by the manner in which nearly all these cells become motionless, many of them presenting signs of degeneration. These injured leucocytes, although incapable of capturing the vibrios, destroy them by their secretions. If we withdraw the peritoneal fluid a few minutes (two or six) after the injection, we can recognize the presence of a great number of these weakened leucocytes, each surrounded by an enormous quantity of vibrios in great part transformed into granules.

The part which the leucocytes play in this extra-cellular destruction of vibrios can also be well demonstrated outside of the organism. One has only to withdraw a drop of the abdominal lymph, which is rich in leucocytes, and to add a small quantity of the mixture of the vibrios and active serum at a temperature of 150° C., and at the end of a few hours nearly all the vibrios of this drop will be found to be transformed into granules. The endothelial cells were totally excluded in this experiment, the leucocytes alone being present.

The extra-cellular destruction of bacteria is thus the work of weakened or injured leucocytes. When the cells are stronger, the phenomenon of extra-cellular transformation of vibrios into granules does not take place, but, on the contrary, we see a characteristic phagocytosis. This result may be obtained if we first inject into the peritoneal cavity a few cubic centimeters of bouillon. After a few hours the leucocytes will be found in the peritoneal cavity in great quantities; and if at this moment we introduce Pfeiffer's mixture into the peritoneal cavity, all the injected vibrios are immediately seized by the leucocytes, so that the extra-cellular destruction of vibrios does not take place at all. On the contrary, we observe an intra-phagocytosis destruction of the vibrios, which is even more rapid than the destruction produced in the conditions of Pfeiffer's experiment.

The extra-cellular transformation of bac-

teria is thus only the episode of the battle between bacteria and phagocytes, which is the general rule of resistance in the animal organism against bacterial invasion.

This conclusion is strengthened by the fact that the extra-cellular destruction is observed only in the peritoneal cavity of the higher vertebrates; but if we inject Pfeiffer's mixture into parts of the organism in which phagocytes have not been previously accumulated, as for example into the anterior chamber of the eye or the subcutaneous tissue, the extra-cellular destruction of bacteria is not at all produced, but there occurs, instead, a very pronounced phagocytosis, conformably to the general rule relating to this phenomenon.

(From Kansas Medical Journal, March, 1895).

### PERITONITIS.

By H. M. OCHILTREE, M.D., Haddam, Kas.

Peritonitis is a disease common to all localities, met by all physicians of any experience, and all have had one or more fatal cases of it. In a practice extending over a period of twenty-three years it has been my misfortune to meet with a large number of cases.

My first were treated by the opium method. It was not successful in my hands, although I used it as directed in journals and text-books. Post mortem examinations in which I would find large quantities of fluid in the abdomen, the viscera glued and matted together, and adherent to parietal peritoneum, would confirm my diagnosis.

In diagnosing this disease the text-books, most of them, say that the temperature will be found to be from 104° to 105° F. This is not my experience. In most of my cases the temperature has not been high, usually not going above 102° F. I have had fatal cases where the temperature was almost normal, and never rising at any time above 101° F.

The principal symptom to rely on is pain around the umbilicus. This pain is

aggravated by pressure, change of position, sneezing and coughing. The abdominal walls are rigid, the legs are drawn up, the breathing more rapid, and an anxiety of countenance hard to describe, but which occurs only in severe abdominal diseases. From the start almost constant nausea, the stomach rejecting everything that is put into it.

The vomited matter is of a uniform grass-green color, and resembles green paint. The color will usually be seen on the second or third day of the disease. I have always had this color in my cases of peritonitis, and it is not a fatal symptom, as described by some authors. Bowels usually constipated, and difficulty in passing urine in most cases, which may be increased by the hypodermic use of morphine to such an extent as to require the use of the catheter.

It is almost impossible to diagnose peritonitis from a severe form of enteritis affecting the whole thickness of the bowel. I had a case of this kind, in which the vomiting was constant, and finally became stercoraceous. The bowels were obstinately obstructed, and could not be moved. Rectal injections of even small amounts could not be retained. The pain was not as hard to control as in peritonitis. This case was first diagnosed peritonitis, and finally, from the fecal nature of the vomited matter, obstruction of the bowel of some form.

In this case a post mortem revealed the fact that there was no peritoneal inflammation or obstruction (except from paresis) but that the inflamed part was a portion of the small and large intestines. Cases of this kind I have reason to believe are rare having met with only one other fatal case which had symptoms similar to the above. Opium has always been regarded as the sheet-anchor in this severe malady, and after the bowels were first cleaned out was administered to the limit of tolerance, and further catharsis strictly forbidden. I have tried the above method. It has been found wanting.

The latest plan of treatment is by s lines. Although advocated a few years ago in strong language, assuring the reader that it was better than the old opium treatment, yet it has gained ground slowly, so firmly fixed in the minds of the profession has been the opposition to catharsis. When called to a case of peritonitis, my plan of treatment is, first to quiet the pain with a hypodermic injection of atropine and morphine, always using the prepared hypodermic tablet. I instruct some member of the family how to use the hypodermic syringe, and direct them to inject a tablet of morphine every one, two, three or four hours, according to pain. I am careful to direct them to control the pain regardless of the amount required. I never in these cases give opium in any form by the mouth; administered in this manner it does not give good results. The stomach is usually in such a condition that the opium, if not rejected, is not absorbed, and valuable time is lost before the pain is quieted. There is but one scientific method of administering opium in this disease, and that is hypodermatically. It quickly quiets the pain, assists in relieving nausea, tranquilizes the system, and gives refreshing sleep. Calomel being well retained where there is nausea, I usually leave several small doses of  $\frac{1}{4}$  to  $\frac{1}{2}$  grain, according to age, to be given hourly, and the last dose followed by  $\frac{1}{2}$  ounce of sulphate of magnesia dissolved in a small quantity of hot water; this dose to be repeated every four hours until bowels act freely. They are then kept moving once or twice every twenty-four hours by sulphate of magnesia until the case is ready to dismiss, when instructions are given to carefully notice the action of the bowels, and see that they move once daily. Bismuth and lime-water are usually left to control nausea, a very small dose of bismuth being given every 15, 20 or 30 minutes, according to effect, and when nausea ceases, at longer intervals.

Occasionally I have found the nausea so great that a saline would not be retained.



In these cases I dissolve one ounce of sulphate of magnesia in six ounces of hot water, and after thoroughly washing out the bowel, inject the solution, and repeat every four hours until the bowels act freely. This injection has always been retained, and produced the desired result, excepting in the severe cases of enteritis before mentioned. As soon as the bowels begin to act freely, nausea is under control, food can be administered, and a bad prognosis can be changed to a favorable one.

One of my cases will illustrate a severe type. W. W., aged 22, was taken with a severe form of peritonitis. Severe pain, elevation of temperature, constant vomiting of a grass-green color, and presented all of the symptoms of a typical peritonitis. I tried sulphate of magnesia by mouth, but neither it, calomel or anything I could give would move the bowels, being rejected. Injections were given of soap and water with only poor results. Consultation was called early, diagnosis confirmed; prognosis, one chance in a thousand. Consulting physician recommended the opium treatment, laudanum by mouth to limit of tolerance, but said he expected no good results from it in this case. Morphine hypodermically had been freely given. I could not bring myself to do this, although I greatly respected the opinion of my confrere. We both examined the abdomen with a stethoscope, and could hear no indications of any movements of the intestines. No flatus had been passed. In the meantime the young man had been notified by his parents of the prospect, and he made a disposition of his effects, and calmly awaited the result.

At this time I had not used sulphate of magnesia by the bowel. It occurred to me to do so. Movement of the bowel offered some hope. Opium, by preventing this and also still further paralyzing the bowel, offered none. The result justified my course. Three injections were given, four hours apart, and retained. The stethoscope revealed some peristaltic action,

the bowels moved, the nausea began to cease with peristaltic action, and was soon under control when bowels moved. This case made a good recovery. Who will say that this case would have recovered under the opium treatment? The green sod would now cover his remains had it been used.

I have many times since used salts by bowel, and can confidently recommend it. I have not made a post mortem in peritonitis for some time. The combined opium and saline treatment has robbed it of many of its terrors, and if called in season there is every reason to believe that the above treatment will be successful. I have not spoken of mustard poultices to abdomen, bathing, fresh air and diet, which should be principally of milk, eggs, and light food. All these should be carefully attended to. The plan will prove itself by its good results.

(From the *New York Medical Journal*, April 13, 1895.)

#### CLINICAL REPORT ON NUCLEIN.

By CHARLES P. KNAPP, M.S., M.D., Wyoming, Pa.

*Amygdalitis*.—G. G., aged fifteen years, female—family have “uric-acid diathesis”—schoolgirl; resides in malarial district; previous attacks of follicular amygdalitis lasting from five to ten days. Taken violently sick October 29, 1894, at 4 P. M., after feeling badly the previous day. Saw her about 5 P. M. She was in bed, moaning from a severe headache and pain throughout the whole voluntary muscular system. She is a fairly well-grown and nourished girl, with the hollow eyes and sallow complexion of those who have an “insufficient liver.” Skin flushed, dry and hot. Temperature, 103° F.; pulse, 120; respiration, 24. Breath had a foetid odor. Tongue coated with a brownish fur. Tonsils swollen, so as to touch the uvula, and coated with a slight mucous discharge, which was easily brushed off, presenting a red and inflamed surface showing numerous small, pin-point crypts, with a slight white exudate in them.

A teaspoonful of Seidlitz salt was given in half a glass of water, and in an hour after a tablet of nuclein solution (Aulde's formula), to be repeated every hour for six hours, and then every two hours. At 11 A. M. next day, pulse, temperature, and respiration normal; patient free from all pain; bowels had moved about midnight, and she had slept fairly well after 3 A. M. Tonsils were reduced in size about one-third, were not so red or painful, and the white pinhead points of the follicles, filled with secretion, were distinctly visible over their surface. Tablets were continued every three hours, and the patient was well the next day.

B. G., aged thirteen years, sister of the first patient. November 11, 1894, 10 A. M., case identical with above, save vomiting during first few hours. Treatment the same. Patient was able to return to school seventy hours after attack, well.

K. K., aged nine years, male. Does not differ in personal history, family, or symptoms from above. December 26, 1894, 12 P. M., one-fifth of a grain of calomel every hour till the bowels moved. Nuclein tablet every two hours after bowels moved, which was four hours after I saw him. Well in seventy-two hours.

**Malarial Disease.**—M. Q., aged three years, female. Father is asthmatic; mother a plethoric woman, but never has had a milk supply for her children; had been brought up largely on condensed milk; has had catarrhal enteritis and asthma. Child anæmic, poorly nourished, and stomach very irritable. Taken sick on January 9, 1895, with chill and fever. At 11 A. M. child tossing about in bed, slightly delirious. Temperature, 104°; pulse, 130; respiration, 30; vomiting, and frequent desire to go to stool. Urine scanty and highly-colored, with disagreeable odor. Stools normal. The desire to go to stool evidently comes from irritation of the bladder, which I frequently find in children after a malarial chill. One-fifth of a grain of calomel was given every half hour till bowels moved, which was

in three hours—a large, loose, and greenish passage; then nuclein tablets, one every two hours. Next day, temperature, pulse, and respiration normal, but patient very irritable, and refuses all food; half a teacupful of a solution of malted milk was given every three hours, and water freely as desired; nuclein continued same as before. Third day, slight chill and fever in the morning, but child able to be up in the afternoon; tablets continued as before. Fourth day, child able to be up; still cross and irritable and appetite poor. Malted milk and nuclein every three hours. No further return of fever or chills. The child continued to improve; other articles of diet that were suitable were gradually allowed, and nuclein given every three hours through the day till the end of the seventh day, when it was given three times a day for three weeks. The condition of this patient to-day is very satisfactory: from a fretful, puny, and poorly nourished child, she has gained in flesh, color, and digestive and assimilative power, to quote her mother, "upon candy medicine."

Mrs. M. D., aged thirty years, widow; good family history; a milliner by occupation. Has been sick with recurrent malaria about three months, having an attack of chills and fever for two or three days every week or two, usually occurring about 11 A. M. or 4 P. M. of the day. Quinine and various preparations of iron had been taken during this time. Consulted me January 3, 1895, at my office, with general malaise following a two-days' attack of chill and fever. She is a well-nourished, slightly anæmic, sprightly woman, who showed upon a careful examination no special features of disease. Put her upon a pill of quinine, iron, strychnine and aloes. Reported on January 14th as no better, the chills and fever having occurred twice since her last visit. Tablet of nuclein given her, two an hour before meals and at bedtime. Returned on January 30th for more tablets, having had no attack since taking them, and at present writing continues well.

**Scarlatina.**—L. W., aged eleven years, female; schoolgirl. Family history ex-

cellent; has never been sick; slight constipation at times. Taken ill October 30th, 1894, early in the morning, with vomiting, fever, and mild delirium. Scarlatina in the neighborhood. At 7 P. M. countenance indicated delirium and mental condition rather incoherent while lying upon her back in her bed; there was nervous tremor; very easily startled. She is a well-developed, well-nourished, and healthy looking child. Skin dry, hot, and dusky red. Temperature, 103.5°; pulse, 130; respiration, 30. Breath has a chloroform-like odor; tongue red and coated with a thick white coating; throat a dusky red, with slight mucous covering, and tonsils swollen and having the glazed and dusky appearance of scarlatinal sore throat. Glands at angle of jaw swollen and tender.

Examination of other organs revealed nothing of importance.

Calomel, a fifth of a grain, was given every hour till bowels moved, preceded by a warm bath. Bowels moved in about five hours. Tablets of nuclein were then given, one every hour. October 31st, 10 A. M., patient had passed a restless night, but was feeling much better at time of visit. Vomiting had stopped. Temperature, 100.5° F.; pulse, 96; respiration, 22. Slight efflorescence on back of neck and chest. Throat still very red and sore; tongue and fauces also very red. November 1st, 11 A. M., patient feeling quite well and bright. Temperature, pulse, and respiration normal. Redness of back of neck and chest still to be seen. Throat much better, but still sore; mucous membrane of fauces and tongue not so red. Her condition was so much improved, I doubted my original diagnosis. Stopped nuclein and put patient on elix. gent. c. tinct. ferri chlor.; told her mother to send for me if patient did not progress well, and to keep her in the house and at home for two weeks.

Called again on November 5th on account of swelling of the glands of the neck. Superficial glands all enlarged and tender, especially those at the angle of the jaw; patient quite anæmic, with pain in joints, and without appetite. Urine dark-colored and scanty and containing a small quantity of albumin. These are the frequent sequelæ of scarlet fever.

I had stopped nuclein too soon; began giving a tablet every three hours, and Seidlitz salt to keep bowels soluble. In five days all these symptoms had disap-

peared. The patient was then put on syr. ferri iodid. (Squibb) in small doses and was soon well.

*Tuberculous Adenitis (Cervical).*—H. H., aged fourteen months, female. Family history of tuberculosis on both father's and mother's side. Had lost a child of five years with what I considered tuberculosis of the kidney. Child had had broncho-pneumonia when seven months old. Had not been well for about a week; was very anæmic; glands about the neck were all enlarged, and the submaxillary glands were very large, red, and tender. She could not move her head, and was unable to nurse the breast. Saw her December 24th at 3 P. M.; was in bed and lying very quiet. Temperature, 100° F.; pulse, 120; respiration, 22. Tongue coated; bowels constipated; urine scanty and high-colored, but did not contain albumin; lungs and heart normal; spleen slightly enlarged; other organs normal.

Calomel, a fifth of a grain, was given every hour till bowels moved, which was at 10 P. M. A nuclein tablet was then given every two hours. December 25th, 10 A. M.: Condition not changed. Was called again at 7 P. M. Child had taken no nourishment during the day. Temperature was 103° F.; pulse, 130; respiration, 26. Phenacetine, half a grain, was given, and the same quantity at the expiration of an hour: then nuclein was given as before. December 26th: Child much better. Temperature, 100° F.; pulse, 120; respiration, 22. Neck still stiff and could not nurse the breast. Malted milk was given in solution, quantity of three ounces every three hours. December 27th: Pulse, temperature, and respiration normal; all glands were decreased in size, and by continuing nuclein every three hours the child was in fair condition, and the enlarged glands had disappeared by January 7, 1895.

Patient was then put on emuls. ol. morrhue. On January 14th mother called at my office for more tablets, saying the child was becoming peevish and fretful, and the glands were enlarging again. Saw her next day. Slight enlargement of glands, but no rise of temperature. Nuclein was given, a tablet every three hours, for remainder of the month. Child improved rapidly, and at present time is in better health than ever before. During the sickness she was weaned from the breast, and is now on a more generous but carefully regulated diet, the principal part of which is malted milk.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### DIABETES MELLITUS.

The attention of our readers is directed to the article appearing in this number, giving an outline of diet for diabetes mellitus, with the object of bringing out some suggestions relating to medicinal treatment. While we do not purpose making a collective investigation on this subject, it would no doubt be interesting to have reports and suggestions from medical men in regard to the most approved remedies for the treatment of this intractable malady, although a proper dietary must always be regarded as of the first importance.

Exception may be taken to the claim that this can be anticipated, and possibly arrested or prevented; by suitable diet, but the writer is of opinion that this statement cannot be successfully controverted, at least in so far as it applies to subjects of a full habit who are to all appearances in fairly good health.

Quite recently a number of these cases have come under observation, and the writer has been strongly impressed with the advantages derived from a regulation of the habits in eating. As a rule, these subjects are over-loaded, that is, they are

overworked through the inability of the digestive apparatus to assimilate properly the food taken into the stomach. As a consequence, they suffer from constipation, more or less headache, with occasional vertigo and distaste for food of every description; the pulse becomes frequent, tense, shows a disposition to intermit, and as the exhibition of a purgative suggests itself, the patient starts out on a vicious circle. Possibly he learns when too late that his effort to "regulate" his system in this manner is a flat failure. We must, therefore, take a philosophical view of the situation, and endeavor to teach our patients that the human differs in every particular from an ordinary machine. Every patient threatened with diabetes should adapt himself to the following directions: Avoid water drinking at meals, and take only a limited portion of starchy food-stuffs.

### THE AMERICAN MEDICAL ASSOCIATION.

The forty-sixth annual meeting of the American Medical Association, which was held in Baltimore beginning May 7, was well attended, and the character of the contributions well up to previous standards; but there was a conspicuous absence from the various programmes of the names of men who have for many years stood at the head of the column. This is to be regretted, not only for the effect which it will have, and has had, upon the public estimate placed upon this organization, but because of the unfavorable influence which it must produce abroad. As observed by the writer at this meeting, there is altogether too much politics, too much dissension, too much wrangling, too much personal jealousy for the good of a so-called scientific association.

The above criticism is not prompted by any envious spirit, but for the purpose of bringing this matter to the attention of members who assume that they are doing what is best for the up-building of the As-

sociation. While the general plan of this organization is well adapted to the profession, because it partakes of the character of the Republic, great improvement could be made in carrying out the details. Heretofore, the main object of chairmen of sections has been to secure a large list of contributors, and owing to the great length of time consumed in reading and discussion, but few of the papers are called for. As an improvement upon the method now in vogue it is suggested that several of the new chairmen select two, or not more than four, topics for presentation at the next regular meeting. Thus, a special topic could be assigned for each meeting day, and members selected in advance to discuss the subject, after which, in case sufficient time remained, any member present would be at liberty to present his views.

By this arrangement, with the addition of a competent stenographer, each session of the section thus arranged would, when completed, form an excellent little book that would be eagerly sought for by all in any way interested in the subject under discussion. As at present conducted, the contributions are too much diffused; there is a lack of concentration in the scientific work; and as many of those present are there principally for the purpose of reading a paper, the spectator is forcibly struck with the listless air of attention which pervades the sectional meetings, as contrasted with the hurly-burly of the general sessions.

At the Milwaukee meeting, two years ago, perhaps the most interesting meeting of the entire session was that devoted to a discussion of the subject of appendicitis, which brought together both physicians and surgeons, and no one who attended this discussion could have failed to receive benefit. The writer ventures to hope that this criticism will attract the eye of some sectional chairman, and that he will select some subject of sufficient importance to occupy the attention of his section for at least one session.

### *LIFE INSURANCE EXAMINATIONS.*

Modern life insurance is not now looked upon as in any sense an eleemosynary institution, since the business is based upon strictly scientific calculations. In fact, the life insurance companies of to-day may be compared with the banks and trust companies, so thoroughly systematic are the business methods; hence no one with an honest purpose thinks of entering for speculative advantages. And yet, life insurance, as now practiced, might be held responsible for the vast speculative enterprises which are managed by capitalists, simply because the protection which it affords enables these men to take risks which they could not otherwise undertake. Fortunately, the life insurance companies stand aloof from these speculative enterprises, thus affording their patrons ample security in case of financial loss; and a commendable feature is now introduced in the policy, enabling holders to borrow money from the company direct, the policy being accepted as security.

Considering the matter from a financial point of view, the duties of the examiner for life insurance involve no small responsibility, a responsibility which does not cease with the completion of the blank and its transmission to the company. This particular business has now attained such enormous proportions in this country that it is of the utmost importance that examinations be conducted with care and skill on the part of the local examiner, since the financial condition of the country might be seriously affected by the failure of one or more of these colossal corporations, not to mention the vast loss which would fall to its members.

IN OUR LAST ISSUE we printed "A Contribution to the study of Cellular Therapy," by Dr. William Jacobsohn. This article was furnished by the author as original manuscript, and was paid for in reprints. To our surprise the same article appeared as original matter in the New York MEDICAL RECORD three weeks after our publication. On enquiry the author states "that being desirous of an early and sure publication" the paper was sent simultaneously to both journals; and Dr. SHRADY informs us that he received the MS "with an implied understanding that it was intended for the MEDICAL RECORD only." We agree with Dr. Shradly, that if the author's intention had been known the paper "would not have appeared in the MEDICAL RECORD"—nor in this journal.

## Current Literature.

**HOW TO TAKE CREOSOTE.**—A perfect, yet simple, method is offered by Dr. C. W. Ingraham, in the *Medical News*, as follows: I give the patient a one-ounce bottle of creosote and an empty eight-ounce bottle. Upon the eight-ounce bottle I place the following label:

*Directions:* After putting in the correct number of drops, according to directions on the small bottle, fill with cold water and take the entire contents of the bottle during the day, in equally divided doses, at regular intervals. Make at least six or eight doses. Shake thoroughly each time before taking.

Upon the bottle of creosote this label is pasted:

Put four drops in the eight-ounce bottle, and take according to directions on that bottle. The second day put in five drops, and the third day put in six drops, etc. Continue to increase one drop per day, until twenty-four drops are taken daily. Do not increase beyond twenty-four drops without instructions.

One ounce of creosote will last the patient a full month at the beginning, but after the first month two ounces will be taken each month. Creosote in this form may be intrusted to the care of the intelligent adult, and I have never had an accident occur from the method. As the daily amount reaches from twelve to fifteen drops, it will require further dilution. The dose can be emptied into a glass tumbler and a sufficient additional quantity of water added. By this method the patient has a fresh preparation daily, and when taken in this highly diluted aqueous suspension it is wholly non-irritant to the mucous membrane of the mouth, throat, or stomach. When desirable a small amount of some one of the vegetable bitters may be added each morning to the eight-ounce bottle, which will assist in stimulating the appetite.

**THE EFFECTS OF THE EXCESSIVE USE OF SUGAR IN EARLY LIFE UPON THE APPLICANT FOR INSURANCE.**—As the use of sugar has such a direct bearing upon the subject of diabetes, the following communication by Dr. James Collins to the *Insurance Register*

for February 1895, should be studied with care: Attention is often called by the medical directors of life insurance companies to the evils arising from the use of alcohol in various forms. It is asserted by good authority that men who drink largely of beer are seldom found with healthy liver and kidneys after they attain the age of fifty years. Again, hygienists proclaim against the excessive use of starch, as found in potatoes and cereals. In this connection, the excessive abuse of sugar naturally presents itself.

As one glances around the city, the opportunities for the sale of sugar, sweets and candies seem to be on the increase; and among children, and even adults, great quantities of sugar are required in their food before they are satisfied with it. Indeed, one finds, in many instances, that the appetite for proper food is obscured by the intense desire for sweets. Children are frequently presented to the physician who have scarcely any desire for proper food unless it is saturated with sugar, and for taking even these highly sweetened substances a reward of candy is given. Not unfrequently one sees these little ones with teeth poor and broken, complaining of acidity of the stomach, with enlarged liver, feeble heart and impaired digestion, the abdomen enlarged to almost aldermanic proportions, constant complaints of irregular bowel movements, with pallor, sour breath at times, and a great thirst for water. Careful examination of the urine, in many instances, will show that these little patients are diabetic.

Here, then, we have a sweet insinuation, the commencement of an enfeebled constitution, as is shown by the feeble digestion and the slow growth of the child. When these children are watched in their development, even though their habits may be changed, they have not the vigor of constitution which is fore-shadowed by their environments and heredity. They are listless, not wont to apply themselves to intellectual culture, and make comparatively no progress in their studies.

When followed in observation through manhood and womanhood, even though they abandon the sugar habit, the tendency to diabetes will be observed if closely watched.

If the alcohol habit is deemed so pernicious and so prejudicial to life insurance, should not this subject also receive attention in the estimate of the rates in writing policies?

The following is a case taken from the experience of the writer: L. R., age 32, applied to me after having been a patient of mine for some time for trifling ailments, and requested me to examine him carefully as he wished to have his life insured for the largest possible amount. He was examined, leaving specimens of his urine to be subsequently tested. His muscles were soft and flabby. His heart was easily excited, and running up and down stairs increased its rate from 76 to 90 per minute and the rate of the respiration to 36. The nervous reflexes, all fair. The retinal eye-ground was pale and slightly turbid, although he denied having any difficulty in sight. Vision, twenty-thirtieths. His liver was fuller than normal. The spleen was not enlarged. On careful testing a trace of sugar was found in the urine. Two days later another specimen was found to show an increase in sugar amounting to nearly one per cent. The normal teeth had all disappeared and had been supplemented by a set of artificial. Further inquiry developed the fact that in childhood large quantities of sugar candy were consumed, "without rhyme or reason," often taking the place of regular food, to which he acknowledged having an aversion, unless it was extravagantly sweetened. As a child his physical growth was slow. He never enjoyed the usual sports of boys, and even moderate exercise made him short of breath. He always carried candy in his pocket, which he used habitually. As can be readily seen, his physical condition was such as to prevent the issue of a policy of insurance upon his life.

**THE PRESENT STATE OF OUR KNOWLEDGE OF GOUT.**—This subject, presented in an exhaustive paper by Dr. Louis F. Bishop, was discussed in the New York Academy of Medicine, March 19th, 1895. We take the following abstract as to treatment from Dr. Bishop's paper (*Medical Record*, April 13, 1895):

The treatment of an acute attack of gout is conducted on much the same principles as that of a like inflammatory condition in any other disease, but the constitutional cause must always be borne in mind. As to the advisability of giving drugs antagonistic to the disease at this time there has been much discussion for a great many years. Authorities have swung back to the original idea that drugs may be used. Much more important on account of the larger number of cases is the treatment of chronic gout. This must be to a great extent hygienic. Diet should be plain, and moderate in quantity. Fluids, as milk, mineral waters, and plain water itself, should be taken abundantly. A regular life with plenty of fresh air and freedom from mental overwork or worry are of extreme importance. It is not as easy to be so sure as to exactly what foods are best, as it is that the quantity must be moderate. Most people after middle life take much more food than is necessary. Starchy and saccharine foods must be limited, not so much because these themselves are dangerous as that they tend to disorder and weaken the digestive system. Fresh vegetables, which we are so fond of recommending, but which so often are hard for people to get, may be taken freely. A gouty person should avoid unreasonable dishes; alcohol in all forms should be avoided. When it is necessary or unavoidable, the acid wines, such as champagne, must be avoided, and alcohol given in the form of good whiskey. All intoxicating liquors may be regarded as mixtures of alcohol, water and other constituents which may be grouped together as giving the taste to the liquor. This latter group may or may not be in-

jurious, but when we are seeking an alcoholic effect it is just as well to choose a mixture in which this latter group is present in the smallest quantity. Good whiskey supplies us with such a mixture. A strong person is often benefited by cold bathing, but this is not to be recommended except to such as are vigorous, and is not to be continued if found to be injurious. The fact that mineral waters are so much more successful when taken at the springs is due to the regimen, which can be enforced much better than at home. A person who has gone many miles from home is prepared to undergo self-denial, which from habit at home might be more difficult to submit to.

Haig has discussed most interestingly the effects of meats which contain uric acid. He argues that when we are dealing with a disease in the causation of whose symptoms uric acid plays so large a part, it is our duty to know the quantity of uric acid in the food that we consume. He does not differ from other observers in believing that the excess of uric acid is due to deficient excretion rather than excessive secretion or ingestion, but he found that matters were made worse by additional quantities of uric acid taken with the food.

**DRUGS.**—Of the drugs that have been vaunted as specifics for gout the latest to engage our attention is piperazin. Its value, like most of its predecessors, is derived from its function as a uric acid solvent, but this very argument is refuted in the same manner in which it is derived.

Sir William Roberts showed that piperazin solution in blood-serum of a strength greater than could possibly occur in the body had absolutely no effect on the solubility of urates. Disinterested clinical reports are not yet obtainable in sufficient numbers to form a judgement. We must not give too much weight to Sir William Roberts's experiments, because we have reports from Germany, in which Biesen-thal shows that in the gout produced in animals by the use of chromic acid, uratic

deposits were prevented by the use of piperazin. In the conduct of these experiments, a scientific method seems to have been pursued. Two animals were subjected to injections of chromic acid for five weeks; one was given piperazin daily; the other was kept under identical conditions but received no treatment. The tissues of the latter were filled with copious deposits of uric acid; those of the former were free. It is not at all certain that this artificial disease produced in animals is identical with true gout, but it would seem that the weight of this evidence was at least equal to that of the English experiments. We must make our final appeal to clinical experience, that source from which it is so difficult to get a positive answer.

The use of salicylate of soda as an uric acid solvent is gradually becoming popular, independent of any theoretical indication drawn from similarity of gout to rheumatism. There is still an impression on the part of some observers that rheumatism and gout have a close relationship to each other. This is being strengthened in some quarters by the use of the same drugs with some success in the treatment of both. Haig found by actual observation that salicylate of soda increases the excretion of uric acid. Phosphate of soda would seem to be a rational drug to use. The use of colchicum in chronic gout does not receive much support.

A MINNESOTA DOCTOR, in an address on the relations between doctor and druggist which was distinguished mostly by epigrammatic bigotry, injustice and ignorance, recently got off a clever aphorism which deserves recording; it was this: "The city of St. Louis gives away in physicians' samples more medicine than Chicago puts up on prescriptions in the same time." This is pretty near the truth; St. Louis certainly furnishes the medical profession with more proprietary therapeutic agents than any other city in the United States.



**SUBSTITUTES FOR DIGITALIS.**—The editor of the Philadelphia *Polyclinic* contributes the following pertinent and practical statement of facts and experience:

The continuous use of digitalis has two drawbacks. In some cases, after a time it seems to lose power; in others there occur so-called cumulative effects. The latter group of effects may be described as sudden, excessive effects, disproportionate to the doses administered. They may be explained as due to an actual accumulation of the drug within the organism, on account of its well-known slowness of elimination; the intake being constantly greater than the outgo, a time finally arrives at which an excessive quantity is actually present in the circulation, despite the fact that there has been no increase in dosage, or even when there has been a diminution in dosage.

Another and much less generally accepted explanation regards duration of effect rather than retention of the drug within the circulating fluids. One dose being added to another, and the effect of each dose lasting longer than the interval between doses, there is a gradual overlapping and accumulation of results, with a consequent greater effect from each successive dose; so that finally excessive action is manifested. We incline to believe that each explanation has a certain amount of truth, and that both together represent the whole truth.

There is also a third though infrequently manifested danger involved in the continuous administration of digitalis, namely, that of paralysis from exhaustion. Its action being to inhibit the heart by stimulation of the pneumogastric nerve, it may exhaust the nerve, and inhibition being rendered less potent, the heart may act with greater irregularity and more feebly than before the drug was given.

It is thus the part of wisdom to interrupt the administration of digitalis for a time, in every case in which its use is likely to extend over a long period; and

the selection of a suitable substitute for it during the interval is often difficult. On the whole, the best single drug for the purpose is *strophantus*, which is best given in tincture. The dose of tincture of strophantus varies from three to twenty minims. It is less active than digitalis as a diuretic, and is said to exert less influence over arterial tension. Our experience is strongly in its favor. Next to strophantus we should recommend *sparteine sulphate*. Our early experience with this drug was disappointing; but we gradually learned that the fault lay in the smallness of the doses that, following the text-books, we had been giving; and since we have used it properly, we have felt considerable confidence in its power. We now give, at first, one-half grain (3 centigrams) by the mouth or skin, according to the urgency of the case, repeating the doses at intervals of two hours until the effect of the drug is manifest in the increased excretion of urine, the increased fulness and tension of the pulse, the greater steadiness and vigor of the cardiac contractions. This may be in twelve, twenty-four, forty-eight hours. The doses are then decreased and the intervals lengthened until the patient is taking from one-eighth to one-fourth of a grain of sparteine sulphate three or four times a day. Thus used, with judgment and fearlessness, this drug will be found trustworthy.

*Convallaria* has been recommended, but is too uncertain to be depended upon. The same may be said of *cactus*; though the latter does sometimes give excellent temporary results. A patient with mitral stenosis, now under treatment at the Polyclinic Hospital, has been much benefited by *cactus*, and such cases are occasionally met with; but, on the whole, experience does not bear out the enthusiastic reports published some few years since. The dose is from ten to thirty minims of a good fluid extract (conc. tincture.—Ed.).

Better than any single drug is a combination of drugs. The exact formula will vary with the individual case; and personal

idiosyncrasies, the state of the cardiac muscle, the nature of the lesion, the tone of the vessels, the comparative integrity of the kidneys, must all be considered.

Strychnine sulphate and caffeine; strychnine sulphate, caffeine and atropine sulphate; sparteine sulphate and strychnine sulphate; tincture of strophantus and tincture of nux vomica; tincture of nux vomica, tincture of belladonna and tincture of strophantus, are illustrations of useful combinations. We are much accustomed to resort to the use of strychnine in combination with any other drug substituted for digitalis. The theoretic object of this is to supply the cardiac muscle with trophic-nerve impulses, to replace the anabolic effect of the action of the digitalis in prolonging the diastole. Whether the theory be good or bad, the practice is beneficial.

**LOSOPHAN IN DERMATOLOGY.**—Dr. J. A. CANTRELL, Professor of Diseases of the Skin in the Philadelphia Polyclinic, and Dermatologist to the Philadelphia Hospital, contributes the following severely prohibitive report to the current issue of the *Therapeutic Gazette*:

In prescribing for the cases I used the following formulæ: In ointments of from two to five per cent. with petrolatum; it was also used as a dusting powder, in strengths of from one to fifteen per cent., with starch. In solution I advised it to be applied in strengths varying from one to five per cent. with alcohol diluted with water.

The number of cases in which I tried this drug were in round calculation one hundred and eleven, and were made up as follows: forty-three of eczema of all varieties, but it gave the desired results in only four cases, the others remaining about the same, there being not the slightest semblance of benefit.

In the animal parasitic affections it was used in twenty-three cases of scabies, but it did not show any amelioration of the condition whatever.

In pediculosis vestimentorum, in which the treatment was applied to five cases, I was obliged to abandon it after three

week's treatment, not having made any change in the trouble at all.

It was given an extended trial, in the vegetable parasitic condition, such as the ringworm species; it was used in sixteen cases, out of which there were four of tinea versicolor, three of tinea tonsurans, and six of tinea favosa which did not respond to the treatment at all. In tinea sycosis, of which I treated three cases, during a period of two and a half months, I found that it cured one case only, and in the others it gave not even relief.

Even in impetigo contagiosa—the mildest of the so-called vegetable parasitic affections—it was tried in eight cases without avail.

Alopecia areata (two cases), dermatitis venenata (two cases), furuncle (two cases), and seborrhea (two cases) gave the same undesirable results as in the foregoing conditions.

In acne it was my pleasure to use this remedy in eight cases, but the drug did not give any positive effect except in two cases, and in these the trouble was not benefited much.

#### SUMMARY.

1. It proved entirely inefficacious in almost every disease of the skin.
2. Tinea sycosis was cured in one instance, but after two months' treatment.
2. It gave a slight idea that it may be beneficial in acne.
4. I think it a waste of time for any one to make use of it in treating diseases of the skin.

**MORNING DIARRHEA.**—Dr. Francis Delafield says, in the *Medical Record*, that he has "patients who, either continuously or at intervals, have, during the morning hours, one or more loose passages from the bowels composed of fecal matter and of fluid"; and that "the disease is seen in New York in a large number of all classes," and he has "not been able to determine any satisfactory reasons for its occurrence." There are five varieties of this "morning diarrhea," all described dis-

tinctly. The treatment adopted by Dr. Delafield is as follows:

If the disease occurs in women, before beginning any medical treatment it is important to have cured any lacerations of the perineum or the cervix, displacements of the uterus, or disease of the Fallopian tubes which may exist. The methods of treatment ordinarily employed are:

1. *Change of Climate.*—The effects of this are often very satisfactory and in the milder cases very prompt. A person who has a morning diarrhea for months may leave New York in the afternoon and the next morning begin to have formed passages. Unfortunately a return to the city may be followed by a return of the diarrhea. In the more severe cases a prolonged residence in a dry, inland climate may effect a cure.

2. *Diet.*—The plans of diet usually followed are: *a*, an exclusive diet of milk; *b*, an exclusive diet of beef and hot water; *c*, a diet composed of milk and meat alone; *d*, a diet from which only the sugars and starches are excluded.

As regards the effects of treatment by diet we find: that some patients are cured, some are benefited for a time, in some there is no effect at all, some get worse.

3. In a small number of cases the diarrhea can be cured by daily lavage of the stomach.

4. *Drugs.*—As a rule, the number of the passages can be checked for a moderate length of time by the preparations of opium. The improvement only lasts while the opium is taken, and it is evident that the use of this drug ought not to be continued for any length of time. The subnitrate of bismuth, the subgallate of bismuth and beta-naphthol bismuth are said to give good results. I have not been very fortunate with them. Salol and naphthalin answer well in some cases, but have absolutely no effect in others. Arsenic, quinine, ipecac, belladonna, and cannabis are all very useful drugs. The drug which has given me the best results is castor-oil in doses of from five to ten drops.

## Recent Medicaments.

**DIURETIN**, or theobromin-sodium salicylate, has recently been made official in the Appendix to the German Pharmacopeia. This is one of the comparatively few new remedies which have found permanent adoption among therapeutic agents.

**ANÆSTHYL** is the French proprietary designation for a mixture of 5 parts ethyl-chloride and 1 part methyl-chloride, useful as a local anesthetic. The name *Coryl* had been previously applied to the same mixture.

**IODOGEN** is the name applied to a mixture of carbon and potass. iodide ( $KIO_3$ ), supplied commercially in the form of fumigating pastilles; iodine is developed in burning these pastilles, and they can thus be utilized for disinfecting sick-rooms, closets, etc.

**ANTISTREPTOCOCCIN** is a serum prepared by progressively immunizing horses or other domestic animals, in the same manner as the anti-diphtheritic serum—now so familiar to our readers; it has been produced by Marmorek, and is to be applied to destroy the streptococcus pyogenes.

**STERESOL.**—This name, coined at random apparently, was applied some two years ago by Berlioz to an antiseptic varnish, composed of 270 gm. shellac, 10 gm. gum benzoës, 10 gm. balsam tolu, 100 gm. carbolic acid, cryst., 6 gm. oil cinnamon and 6 gm. saccharin—all dissolved in alcohol sufficient to make 1 liter. This varnish was recommended as a good adhesive applied to the skin or mucous membranes, for diphtheritic angina, tubercular ulcers of the skin and on the tongue, eczema, etc. Every now and then physicians read of "steresol" in floating current literature paragraphs, and then follows a vain effort to procure the product. By setting above formula down here, our readers will be enabled to prepare the varnish if occasion to try it ever occurs.

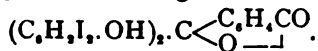
ULYPTOL belongs in the same category with steresol. It is occasionally mentioned as a "new antiseptic." It was originally named and introduced in 1886, and is prepared by mixing 6 parts salicylic acid, 1 part carbolic acid and 1 part oil eucalyptus. It is also known as *eulyptol*; and the mixture is of service in treating wounds.

SALICYLATE OF ALUMINUM AND POTASSIUM, a compound of potass. acetate and alumin. salicyl. by patented process, is introduced as a new antiseptic and astringent by the same manufacturer who holds a patent on Aluminum Aceto-tartrate. The latter product, though well endorsed, has never achieved merited popularity.

GUAIACOL, chemically pure, crystallized, has been selected as the official product for the French Pharmacopeia, and the same form is recommended for the new British Pharmacopeia. If the demand for the crystallized guaiacol increases it will cause much trouble between manufacturers, dealers and physicians, because the product liquifies very readily, and it is impossible to keep it in crystallized form for any length of time.

CREOSAL, a mixture of beechwood creosote and tannin, occurring as a dark brown powder, hygroscopic, soluble in water, alcohol, etc., is recommended in French journals as an effective astringent for use on inflammatory conditions of the mucous membranes of the throat and lungs; it has no caustic effect. Administered in aqueous solution, or in powder form mixed with sugar. Dose, 3 grams, which is equivalent to about 1.8 gm. creosote.

NOSOPHEN is a new iodoform substitute, an organic iodine compound, *Tetra-iod-phenol-phthalein*, having the formula



It is described (*Therap. Monatshefte*) as a light yellow, odorless and tasteless powder; insoluble in water and acids, dissolving only slightly in alcohol, but

more readily in ether and chloroform; melting at 255° C. (491° F.) with the elimination of iodine. It has the character of weak acids, forming permanent salts with bases—of which the alkali salts are soluble in water, and the heavy metal salts insoluble. The proportion of iodine is 60 per cent., and exceptionally in molecular combination, resisting dissolution under ordinary circumstances and particularly in the human organism, whether internally or subcutaneously applied. Therapeutically it is available for its bactericidal and dessicative properties; it is not locally irritant, nor toxic; 4 to 8 grains have been administered without causing symptoms in stomach or intestines. Seifert has published a report of clinical trials with nosophen (*Wien. klin. Wochenschrift*, 1895, No. 12), from which we summarize: He employed the product principally for affections of the pituitary membrane; the best results were achieved with insufflations in rhinitis hypersecretoria; less prominent, but still good, was the effect in rhinitis acuta. He also successfully employed nosophen insufflations as after-treatment to prevent formation of fibrinous exudations after chromic and trichloroacetic acid cauterizations. Satisfactory results were also noted in balano-posthitis and ulcus molle; in the latter it is necessary to prevent formation of crust and consequent retention of the secretions—and, therefore, the remedy is only dusted on in a thin layer. Seifert's method is to clean the sore, cauterize it with liq. ferri sesquichlor., and then dust nosophen over it and cover with a thin layer of cotton.

#### PUBLICATIONS RECEIVED.

Diphtheria: Our Modern Views—its etiology and pathology with remarks on the early history of the malady. By J. MOUNT BLEYER, M.D., of New York. Reprint, 1894.

Eight Cases of Syphilitic Stenosis of the Larynx, Caused by Webb-formation; Operation by combined tubage and the knife. By J. MOUNT BLEYER, M.D., of New York. Reprint, 1893.

Diet, Digestion and the Voice; with remarks of value to voice-users.—Do's and Don'ts. By J. MOUNT BLEYER, M.D., of New York. Reprint, 1892.

## Miscellany.

**FRIGO-THERAPY** is a new system of treating stomach diseases, recommended by Prof. Raoul Pictet after most favorable personal experience. The patient, warmly clad, enters an ice-house or refrigerator; within a few minutes a painful and growing feeling of hunger ensues, which may be appeased with satisfaction after emerging from the frigid retreat. Prof. Pictet, who suffered from indigestion, was cured, regaining appetite and perfect digestion, by taking 8 to 10 minute doses for eight consecutive days. It will be in order now, to establish refrigerator salons alongside of bathing pavillons at health and watering resorts—and for hotel proprietors to increase their rates for board simultaneously.

**THE NEW YORK PASTEUR INSTITUTE**, established by Dr. Paul Gibier in 1890, has never received financial support from public sources, but has been maintained by the private means of its Director, the income from patients treated there and from other sources, and by private subscriptions. Nearly 2400 persons have been treated in the last four years, and of these 590 received the full fifteen day treatment; out of the 590 severe cases only four died. At least 800 patients were treated free; about 600 paid the regular fees, and over 600 paid only sufficient to cover the expenses of treatment.

In the State legislature a bill was recently passed, and now awaits the Governor's signature, granting the New York Pasteur Institute a yearly allowance of \$6000, for which free treatment will be extended to any dog-bitten patient of New York State. Thus the Institute is made and to be recognized hereafter as semi-official.

**DID POE KNOW OF HELIUM?**—The London *Chemist and Druggist* asks the question. It says: An ingenious Frenchman has found a passage in one of Edgar Allan Poe's "Tales of Mystery and Imagination," in the course of which one character says:—"I then took opportunities of conveying . . . a quantity of a particular metallic substance or semi-metal, which I shall not name, and a dozen demijohns of a very common acid. The gas to be formed from these latter materials is a gas never yet generated by any other person than myself—or at least applied to any similar purpose. I can only venture to say here that it is a constituent of azote, so long considered irreducible, and that its density is about 37.4 times less than that of hydrogen. It is tasteless, but not odorless; burns, when pure, with a greenish flame, and is instantaneously fatal to animal life." Now that looks more like helium than argon, which the *Westminster Gazette* thinks it is, and we want to know if we are to take it seriously. If so, the proper course is for the shade of Poe to come forward and claim priority.

**CAFFEINE ARTIFICIALLY PRODUCED.**—Prof. Emil Fischer, of Berlin, assisted by L. Ach, has succeeded in finding a method for the synthetic production of caffeine (*Ph. Zig.*, 1895, 29). If the process will yield the product at a reasonable rate on a commercial scale, the discovery is very timely—because cheap tea-leaves are giving out, and natural caffeine which sold a year ago at less than \$2.00 per pound is now hardly obtainable at six times that price.

**BACILLUS MORTIS.**—Scientific journals in Europe are not above a certain degree of levity occasionally. Thus a German publication recently took the opportunity offered by having its publication day fall on April 1st—all fool's day—to gravely announce the discovery of the "bacillus of death" by a Chicago physician, and to describe in detail the efforts making to discover an antidote or an immunizing antitoxine. The item was greedily seized by many scissors-editors, and widely reprinted—with and without credit to the source. The hoax was soon after explained, and now the various persons concerned—jestor and victims—regard the affair with mixed and differing feelings.

**LITHIA WATERS SCORED.**—The chief value of these lithia waters lies in the increased quantity of water taken by those devoted to their use.

It might not be out of place here to allude to the bottled-water craze. I say bottled water because an examination of the formulæ given by the people who advocate their use often shows that the only difference between the waters they sell and the water that may be had from the Croton faucet, or from any farm spring, is that one comes from bottles and the other from pipes.

In the absence of an acquaintance with quantitative chemical analysis, the attention of the average man is so much concentrated upon the imposing list of ingredients written out for him in full chemical terms, and printed in heavy type, that his attention is diverted from the local decimal figure which represents an amount per dose of the water so small that one must be a mathematician to appreciate such a quantity. It is a fundamental property of decimals that the more zeros between the decimal point and the first figure representing value, the smaller the quantity they stand for, and yet the impertinent agent of a mineral water will occasionally point with pride at the size of these decimals.

It is time that medical men should cease allowing themselves to be imposed upon by such childish frauds, and keep at hand an analysis of Croton (or other local hydrant—Ed.) water, so that when prescribing the identical water to a patient they may patronize the pipe instead of the bottle, and save the patient from enriching some adventurers.—Dr. LOUIS F. BISHOP, in *Medical Record*.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### *SURGICAL INTERROGATION POINT.*

By SAMUEL S. WALLIAN, A.M., M.D.

The advances made in the line of surgical procedures during the past quarter of a century are astonishing, and almost revolutionary. They are the one boast of physical science. To the staid comprehension of old-time surgeons, a goodly number of whom still survive as scientific anachronisms, these innovations are as astounding as unwarranted.

The abdominal cavity, once a sealed book, a sacred and unexplored region, is now freely opened up, tampered with and fairly reveled in by every tyro in surgery. The peritoneum, to invade which formerly meant certain death to the unfortunate victim, is now dallied with at will, slashed, excised, washed, stitched, and even relied on for vicarious service when other organs of absorption and repair are incapacitated. The surgical dare-devils of the day begin to assert that it is one of our most valuable allies in many emergencies, and one of the most self-protective and self-helpful tissues of the entire body.

Operations on the brain, that a few years since would have been considered ample evidence of the operator's ignorance, recklessness or lunacy, are now undertaken with the utmost nonchalance, and frequently result in complete relief of conditions which were formerly held to be necessarily fatal and irremediable.

Ophthalmic surgery hesitates at nothing; snips tense muscles, scoops out cataracts, breaks up lenses, and fairly turns the vis-

ual organs inside out, with perfect impunity and with a daring that has become too common-place to be noticed.

The nose, throat and ear are trimmed with lilliputian buzz saws, bored with pigmy drills, and burnt with electric knives, snares and loops, in a way to cause the ghosts of back-number rhinologists to burst their sepulchres and hold their spookish breath in holy horror at the ruthless sacrilege. The bladder, urethra and uterus are invaded with electric torches, denuded, dilated, electroplated, if need be, and extirpated, with as little ceremony as once attended the opening of a simple abscess or the extraction of an offending molar. The stomach and bowels are resected, kidneys stitched to place or removed, liver and gall-bladder scraped or patched, and even the lung tissue is levied upon by knife and curette in the hands of the audacious surgeon, without exciting comment, and what is more, without invariably destroying the life of the patient.

Plastic surgery is becoming as common as the measles. New noses, ears and lips are fabricated, old ones are remodeled, wry faces are made presentable or even beautiful, and destroyed organs are reconstructed regardless of (tissue) expense. Ovariectomy has come to be a mere by-play for first year graduates, and the surgeon who has not perpetrated a hundred oophorectomies, for women who prefer the annihilation of motherhood to any curtailment of their social privileges and convenience, is now looked upon as slow, timid or inexperienced.

Notwithstanding all this and much more that might be referred to, is not the art of surgery capable of much further improve-

ment? Is it not still crude and brutal in comparison with what it may be made? The enthusiasts of the day imagine that with strictly aseptic instruments, the free slopping of all-potent sublimate, and the heroic use of ether they can do all things and dare all things. Should they not take heed lest they commit excesses which when carefully investigated will be adjudged nothing short of criminal?

For example, is there not a reckless and unwarranted use of the more deadly poisons as antiseptics, when innocuous agents would be equally efficient?

Has not anesthesia, too, its limits as to safety and availability? Reform in the method of administering anesthetics is probably the most urgent need of the bold present-day surgeon. This department of surgical art has been practically turned over to the immature discretion of the junior of the house staff in hospitals, and to the accidental helper in outside operations.

In answer to an inquiry as to his method of administering anesthetics, the precautions observed as to accidents, etc., an eminent specialist in the field of capital operations, expressed himself as follows: "That is a matter about which I do not trouble myself. I know that ether is the agent used, but I do not dictate in the least as to the technique of its administration; nor do I pay any attention as to what precautions are kept at hand to resuscitate patients who may be asphyxiated. My province is wholly with the instruments."

That it is comparatively easy to cover the report of the fatal cases with plausible verbiage about "advanced nephritis" and other unsuspected organic lesions, should not exculpate the surgeon legally, or satisfy his conscience from a moral standpoint.

It is time to inquire, how many surgical sins of omission and commission are effectually hidden between the lines of the house surgeon's certificate. It may be urged that cases of ether narcosis are ex-

tremely rare; and so they are—in the reports. But are they anywhere nearly so rare as they purport to be?

Are modern surgeons growing reckless and over-confident in the use of anesthetics?

Has any surgeon a right to be negligent in a single instance?

It will be admitted, that patients occasionally die from the effects of anesthesia who would have survived the contemplated operation had there been no anesthetic used. It follows that in such cases the surgeon blundered in one of several ways. Either he should not have exhibited the anesthetic at all, he should have used greater care, or he should have had at command more efficient means for overcoming the fatal narcosis as soon as it became apparent.

Is ignorance of these means, under any circumstances, excusable? As every man is supposed to know the law, so every surgeon is presumed to be fully aware of all the reliable agencies and methods for resuscitating patients suffering from ether or chloroform narcosis.

How many of our most skilful and eminent operators are particular to have at hand all the known means for treating narcotized patients? These are days that fairly bristle with examples of brilliant surgical talent, but in the craze for priority in attempting new and startling operations, have not the reasonable but morally imperative laws of prudence come to be overlooked and ignored? In short, is not the whole procedure in connection with anesthetics open to serious criticism?

How does the average surgeon prepare his patient for the ordeal of a serious operation? By a little antiseptic scrubbing, which is well enough; a glass of whiskey, which is, to say the least, of decidedly doubtful utility; with, perhaps, a little preliminary fasting and an unctious laxative—the one good, the other—possibly the lesser of two evils, but by no means ideal. In rare cases there is a cursory examination of the urine for albumin.

Could more be done in the way of preparing the subject for the trying ordeal?

The danger may be described as two-fold: That from a demoralization of the nerve-centres, or rather stagnation of the involuntary and sympathetic systems, and asphyxiation. It is of no practical avail to discuss the question as to whether the par vagum or the cardiac plexus is first inhibited. The condition is one of suspended animation, suffocation, cessation of vital functions. The object to be instantly sought is restoration of function. With our present light on the subject of chemico-vital physiology, is it not taking unwarranted chances to rely wholly upon inversion of the body and a few spasmodic efforts at artificial respiration?

What other ready and rational means are at command?

First, the sudden and forcible stretching of the sphincter ani. In a majority of cases the subject will respond to this procedure with a convulsive gasp, and respiration will be promptly restored. To accomplish this most effectively the surgeon should not rely on the thumb method, but should have always at hand the proper instrument for the purpose, Pratt's or other equally reliable pattern. This may strike some surgeons as a very old chestnut, so old, in fact, that they have forgotten how prompt and how simple it really is. It is without doubt the readiest and least objectionable means for suddenly arousing the sympathetic system and restoring the breathing function, of which we have any knowledge. I do not know half a dozen surgeon who ever even tried it.

Second, aëration. Not merely by the passive use of the always vitiated atmosphere of the operating room, nor by any so-called "compound" of this gas, but by a prompt and plentiful use of *pure oxygen*. At the outset, the patient can be more or less effectively fortified for the ordeal by being previously super-saturated with this vitalizing element; and if fatal narcosis at any time seems imminent he can be promptly and almost invariably resusci-

tated by its *thorough* administration. The surgeon who does not know this, beyond all cavil, or who goes farther and disputes its possibility, either declares his ignorance of physical phenomena which are easily verified and put to practical test, or he virtually admits that he is a scientific bigot and ought to resign the scalpel to more consistent hands. In the present state of biological, physiological and chemico-vital knowledge, any such opinion is inexcusable.

Third, electricity—least resorted to, least understood, and possibly most potent of all the available agents—is another very ancient nut, but one that has come back to stay. In fact, so much has been done in this field that it can not be passed by with a mere casual reference in the stereotyped way with which we have got in the habit of treating it.

Fifty years ago the baffled physician or surgeon in Washington could have *telegraphed* to Baltimore for assistance. Had he wished for a New York consultant his message would have had to travel by *mail* from Baltimore. That was the extent to which he could have drawn on electricity. Now, the whole civilized world is a spider-web network of wires; a million messages are sent and answered every hour; we can recognize each others voices a thousand miles or more; we light our streets, propel cars, drive machinery, warm and light dwellings, cook and converse, by electricity; and a million electric bells are already sounding the knell of the steam locomotive. The medical profession has not kept pace with this wonderful commercial advance, but we are forging ahead with as much speed as our inherited conservatism will warrant, the past five years having taught us more on the subject than the whole century preceding it. Judging from what we now know, it is safe to predict that within another quinquennium we shall do away with the more or less hazardous and objectionable use of ether and chloroform as anesthetics, substituting the safe, competent and as yet unac-



countable sedation which is possible by means of the extra long and extra fine secondary coil!

Several years since, Morton, Goelet and others demonstrated that a normally stimulating secondary current can be so attenuated as to become powerfully sedative in its effects; and Churcher, of Cincinnati, has just announced a still longer coil, which will produce still more wonderful effects. With this new coil, the latest contribution of the electrician to medical science, sedation can be readily carried to the extreme of partial anesthesia; so that the part subjected to it can be pricked with pins, without causing appreciable pain. This is a step in advance, the importance of which can hardly be estimated; but it is a mere preliminary to other and more important advances soon to be announced. The great hindrance has been a lack of safe and competent facilities. But the mechanical electricians are coming to the rescue, and some of us have been compelled to become our own designers; so that the proper facilities will soon be forthcoming. The clouds, the air and the earth have been tapped, the street light lines are being harnessed, and by-and-by, by the aid of shunt-coils and adapters, we shall be able to tame the potential of the dynamos to do our bidding, both safely and conveniently; and then the way will be clear to do many things not yet dreamed of. Already dynamotors have been devised whereby the alternating can be transformed into the continuous current, and perhaps the day is not far distant when we shall be able to do with the electrode much that we now bunglingly, and too often vainly, attempt with the spatula.

The Electrical Age is hard upon us, and we must square ourselves to appreciate and utilize it—not to its fullest extent, for no scientist can yet say what that is—but to the limit of our capacity for understanding and adapting it.

It will be a happy deliverance when the mischief-breeding hypodermic needle and the ether inhaler can be permanently relegated to the medical curiosity shops and historical museums.

Helix, California.

## SPERMINE SOLUTION.

By GEORGE E. KRIEGER, M.D.,  
Surgeon to the Chicago Hospital, etc.

**HISTORY.**—Ever since Brown-Sequard made his discovery that the extracts of sexual glands, when used hypodermically, have a stimulating effect upon the system, it has been the effort of chemists and physiologists to find the active principle which is responsible for the phenomenal action of such extracts. The researches made in this direction have led to the conclusion that the effect of testicular juice is due to an organic base, which was found as early as 1878 by Phil. Schreiner, a German chemist, while analyzing human sperma. The substance obtained, and called "Spermine," has been put to many tests by chemists, physiologists and by clinical observers of the highest rank, who all agree that this material is the real active principle of our glandular organs and affords essential assistance, if not the original impulse, to natural metabolism of tissue. The investigations of Pöehl,\* of St. Petersburg, and myself† during the last four years, have demonstrated that this substance is found wherever an active organic change is in progress, and that by its presence the oxidation of albuminoids is highly increased, while in weakened conditions of the organism a lack of spermine is apparent, frequently caused by its transformation into an inactive form and its elimination from the system, as has been observed in typhoid malaria, tuberculosis, pneumonia, etc.

From such facts it was reasonable to conclude that the introduction of this active principle into the system must have a stimulating effect upon the vitality of the individual, and many experiments, made first on animals and later on man,

\* Transact. Acad. of Med. St. Petersburg, 1890—1894.

† New York *Medical Record*, Oct. 6, 1894; *Journal Am. Med. Ass'n.*, Nov. 3, 1894.

have demonstrated the value of this substance as a physiological tonic *in all cases of depressed or exhausted condition*.

Scientifically spermine is a chemical substance, identified as  $C_4H_{11}N$ , the simplest body in the group of the leucomaines, and represents the active basis produced by the action of the cell-nuclei, especially of the multi-nuclear white blood corpuscles. Other allied products, as nuclein and nucleinic acid, seem to be but instrumental in carrying out the cell's tendency to supply the organism with its natural stimulant: spermine.

**SOURCE AND PREPARATION.**—The various sources which yield spermine rank as follows: Testicle juice, brain, ovaries, pancreas, thyroid thymus, blood, yolk of egg, lymphatic glands, bone-marrow, yeast-cell, etc. Spermine is prepared by digesting the glands, selected from absolutely healthy animals, extracting the leucomaines, separating the albuminoids and xanthin bodies from the basic substances, precipitating and redissolving the latter, and finally sterilizing under high pressure the resulting solution of spermine. By such a process a permanent, aseptic material of definite strength is secured, which, being perfectly harmless, possesses highly dynamogenetic and antiseptic properties.

"The vitality of the organism," says Dr. Aulde, "depends upon the integrity and normal functional activity of the cells." This action is regulated by such substances, produced in the cell-nuclei, as are able to promote oxidation, and among these is the principle: spermine. The immediate effect of a deficiency of this substance in the human economy is, therefore, an imperfect oxidation of albuminoids, an accumulation of half-decomposed material and frequently an auto-intoxication. If this takes place, the organism loses its resistance and strength and becomes readily subject to infections of all kinds. By experiments on animals it has been proven that if the production of spermine in the cell-nuclei is limited, the fatal dose of anthrax and other bacte-

rial poisons is much smaller than under normal conditions, which shows that through its stimulant influence upon the natural chemism *spermine acts as an anti-toxin*. If, on the other hand, spermine is injected simultaneously with the inoculation of bacterial poisons, into guinea-pigs, the animals withstand three to four times the dose which otherwise would be fatal.

It is evident from such facts, that spermine is produced by our organism not only as a stimulant to functional activity, but also as a medium of self-defense against contagious and infectious diseases. Considering this fact, and starting with the basic idea that Nature is always best supported by its own physiological principle, one is easily convinced that a vast field of usefulness is opened to this new therapeutic agent.

**THERAPEUTICS.**—In the following a brief clinical review is given of some diseases in which pronounced benefit has been observed from spermine injections.

**Asthma.**—Mr. A. R., 63 years old, suffering for eight years from asthma with neuralgia of the heart; frequently had to stop when walking on the street to recover from sudden paroxysms; fully relieved after 10 injections of 15 minims each.

**Anemia and Dyspepsia.**—Spermine has been found of special value in cases where loss of strength is due to indigestion or imperfect assimilation of food. A most pronounced example, I saw in a young lady, a school teacher, 24 years old, who was subject to severe attacks of acute anemia, frequently combined with disorder of the stomach. After a few injections of spermine she rapidly gained strength and weight, and was able to resume her work. Within two years three such attacks were promptly checked by but six injections each time, resulting in permanent restoration of health.

In another case of anemia, in a girl of 14, the effect of spermine injections was an immediate change for the better in color and general strength, and repeated examinations of the blood showed an enormous increase of red corpuscles.

**Chorea.**—F. K., girl of 10, had been suffering from chorea for eight months and growing steadily worse, so that she lost entirely the control of legs and arms. After five injections of 8 minims spermine all irritability ceased, and within less than two weeks she was as well as a normal child. Since then she has gained remarkably, and has had no further attacks for nearly two years.

Even more rapid was the change observed in a boy of six years, who, previous to the spermine treatment, was the patient of a prominent Chicago oculist. It took but three injections of 8 minims to stop the constant nervous jerks of hands and arms, from which he was suffering, and during the last fourteen months he has had no renewed attacks.

**Diabetes and Bright's Disease.**—A marked improvement resulted in patients suffering from chronic nephritis and diabetes. Prof. Tarchanow reports a case of diabetes treated with spermine injections in which the amount of sugar in the urine was reduced over 50 per cent. within two weeks.

Dr. K. M., 38 years old, of Chicago, suffered from mitral insufficiency, asthma and chronic nephritis, with large amount of albumen. The latter was decreased to  $\frac{1}{3}$  its volume after a few spermine injections.

**Bronchial Catarrh and Diseases of the Lung.**—As the fundamental cause for catarrh in the respiratory organs and diseases of the lung and pleura is based either upon weakness of the blood circulation or specific irritation, it is evident that those means by which the resistance of the organism is raised are the best remedies for the above diseases; and the more natural the stimulant, the more permanent must be the effect. Starting from this point of view, I have submitted quite a number of patients suffering from nasal and bronchial catarrh and pleurisy to spermine treatment, with almost invariable success, the catarrh and expectoration ceasing even without any local treatment.

### *Tuberculosis and other Infectious Diseases.*

—For the same reason as mentioned above spermine is an admirable reconstructive agent in all wasting diseases. It is now generally admitted that tuberculosis is a curable disease if the patient is placed under favorable conditions and the disease is not too far advanced. The product of bacterial life is the main object of offense, and if this can be effectually neutralized or eliminated from the system, recovery will follow. Our efforts in treating wasting diseases, the paradigm of which is pulmonary tuberculosis, must therefore center in creating conditions which are adequate to throw off bacterial poison. In a paper, recently read before the Illinois State Medical Society, I explained the effect of spermine upon bacterial products, and, in accordance with many European investigators, I stated the opinion that the beneficial effect of this remedy is due to its oxidizing power and its ability to stimulate cellular activity, hereby creating leucocytosis, the natural process instituted to protect our organism against deleterious elements. If leucocytosis, which only means an increased proliferation and activity of the white corpuscles, is sufficient to neutralize the bacterial poison present, recovery—or, at least, a substantial improvement—will result, provided the patient is not exposed to constant reinfection; for this latter reason a proper accompanying dietetic and hygienic treatment is indispensable. A most striking illustration of the effect of spermine in a case of severe pulmonary tuberculosis, I observed in a man who, though moribund, recovered temporarily under this treatment—being able to walk out again—and death was postponed for over two months. Many other cases of tuberculosis have been reported in Russian literature, being either cured or greatly improved by this remedy.

**Typhoid, Malaria, Pneumonia, etc.**—Similar beneficial results as in tuberculosis have been observed in acute infectious diseases. A Russian physician reports

(St. Petersburg *Mediz. Woch.*) a case of severe typhoid, with paresis of legs, incontinence of urine and general collapse, which was treated with spermine and patient recovered after a few injections. Dr. Sicharow saw recovery from scorbutus with ankylosis of the knee after spermine injections. A remarkable effect was observed in consultation with a prominent Chicago physician, in a case of pneumonia; a girl of five years, in a critical condition, severe dyspnea and cyanosis, with all symptoms usually preceding an imminent exitus, suddenly revived after one injection of 15 minims spermine, and recovered fully after brief treatment, to the surprise of all concerned.

*Syphilis and Chronic Ulcers.*—According to the statement of several Chicago and New York physicians, old cases of syphilis, which did not re-act on mercury nor iodides, have been cured by spermine injections. Dr. Gaedecke, of New York, reports a case of about 8 years' standing, presenting more or less complications coincident from date of primary infection; the eruptions, obstinate to all former treatments, disappeared after two weeks' spermine treatment. Another case, reported at the Kalinkin Hospital of St. Petersburg, is that of a woman 29 years of age, who suffered for 13 years of various forms of syphilis; was treated with blue ointment for six years, became very anemic, had three ulcers on her forehead, periostitis of the right radius, inflammation of the right knee-joint, allowing but limited movement of same, edema of legs and feet, etc. All symptoms improved greatly when patient was subjected to spermine treatment (N. Y. *Med. Record*, Oct. 6, '94). Old tibial ulcers have also been reported as disappearing rapidly under this treatment (St. Petersburg *Med. Woch.*, '91).

*Neurasthenia and Neuralgia.*—A pronounced effect of spermine has been observed by many practitioners in cases of nervous depression and complications ascribed to the latter. Men and women suffering from neuralgia in the back and

limbs, were uniformly cured within a period ranging from a few days to a month by injections of spermine. A very striking example of general neurasthenia, cured in this way, I demonstrated last year before the Chicago Medical Society. The patient, a lady of 39 years, complained of palpitations of the heart, great irritability, nervousness, lumbar neuralgia, frequent headache, insomnia, etc. After but three injections of 15 minims each she felt perfectly well, and remained in good condition for over a year. Equally good results have been observed and repeated by physicians who have employed this remedy in similar cases.

*Locomotor Ataxia and Spinal Degeneration.*—Such dreaded diseases as locomotor ataxia and spinal sclerosis, which, so far as therapeutic applications are concerned, have been a puzzle to the practitioner, have given perhaps the most satisfactory results when patients were put upon the spermine treatment; but as time and space hardly allow me to mention the numerous cases of cure and improvement, I will only refer to such records as have been published in journals, as the New York *Med. Record*, '94, the *Journal of Med., Chem. and Pharm.*, '91, No. 3, the *Saltpetriere*, Paris; Eulenburg's *Encyclop.*, Jahrb. p. 650; *Deutsche Med. Woch.*, '90 to '93; *Annales de l'Institut Pasteur*, etc., in which many cases of this kind have been recorded as benefitted by injections of spermine. To these I may add my own experience in a limited number of cases of locomotor ataxia, which in some instances improved beyond expectation, even with complications present, as incontinence of urine and anus. One of such cases I exhibited\* last year before the Chicago Medical Society. The patient, a man of 57 years, had suffered for over a year from paresis of the legs, which resulted in complete paralysis. After but a few injections he could walk about in his room, and was able to climb

\* *Chicago Medical Recorder*, 1894.

stairs within two weeks after starting the treatment. Another case was that of a man aged 48, with pronounced symptoms of locomotor ataxia, lasting over 8 years, chronic cystitis, incontinencia recti, lumbar neuralgia and general debility. At first I expected no improvement at all in this case, and declined to treat the patient. But when a trial proved to be of remarkable benefit, I continued the treatment and the result was a nearly complete recovery.

**DOSAGE AND METHOD OF ADMINISTRATION.**—It will always be more or less a matter of experience to select the appropriate dose of spermine in any certain case; but as a rule from 5 to 10 minims should be given as the initial hypodermic dose to adults, and 3 to 6 minims to children. These doses may be increased one minim per day until the full dose of 15 minims is reached. The application may be made on any suitable part of the body, but strict asepsis should be observed, as well in cleansing the syringe as the skin of the patient. As long as these rules are followed no untoward effects will be experienced, as the remedy is perfectly harmless and innocuous. The duration of the treatment will greatly depend upon the duration and gravity of the case. In chronic diseases, however, it should be continued for at least two weeks before any conclusion may be drawn about its effect upon the patient.

100 State Street, Chicago.

**DR. WELCH**, the bacteriologist for Johns Hopkins Hospital, has demonstrated that germs will not grow in the immediate vicinity of silver. A sterilized silver wire was introduced into a culture, and while the colonies grew as usual elsewhere, immediately about the wire was free from them. Drs. Halsted and Kelly are making use of this discovery by using silver foil in the dressing of aseptic surgical wounds. The foil is placed immediately in contact with the closed incision in sheets about four inches square, and then the other aseptic dressings are applied.—*College and Clinical Record*.

## PLACENTA WITH TWO DISTINCT AMNIOTIC SACS.\*

By **LOUIS FRANK, M. D.**,

Associate Professor of Obstetrics and Director of the Bacteriological Laboratory, Kentucky School of Medicine; Gynecologist to the Louisville City Hospital; Obstetrician to the Kentucky School of Medicine Hospital, etc.

I have here a specimen which to me is a very interesting one—a placenta from a case delivered eight or ten days ago. There was nothing peculiar about the case worthy of mention, except that the labor was somewhat prolonged and occurred in a primipara. After the placenta had been delivered, I examined it carefully and found two distinct amniotic sacs, one within the other. It is not a double amniotic sac, but one sac springs from the placenta where we would invariably expect to find it, the other is within the first and springs from about the insertion of the umbilical cord into the placenta.

I am unable to find anything of this sort mentioned in the literature of the subject. I have looked it up very carefully since getting this specimen but can find nothing bearing upon it, excepting splitting up of the amnion with the formation of a sac between the amnion and the corium.

I have not examined this specimen microscopically, but have taken sections of it which will be carefully examined and reported upon later. If we find here three layers in the amniotic membrane proper, it will be much more interesting. I cannot understand how these parts could have been formed. We know that in the formation of the amnion, it being a foetal structure, there is a splitting up of the epiblast and part of the mesoblast, that this outer layer however divides with the vitelline membrane to form the true corium layer, the amnion itself being reverted and forming the natural covering

\* Reported to the Louisville Clinical Society, and contributed to the *AMERICAN THERAPIST* exclusively.

of the placenta proper. That is the case here, so, as I say, I cannot understand how the condition before us could have occurred.

COMMENT BY DR. W. H. WATHEN.

The specimen is certainly an unusual one, and the first of its kind that I have seen. When the true amnion is forming there is a false amnion that is forming probably entirely from the epiblast, that immediately lines the internal membrane of the ovum; the true amnion is formed mainly from the mesoblast, and throws a membrane all around the embryo, leaving a space between the true and the false amnion, having an intervening layer of liquid, which finally, as a rule, disappears by the true amnion coming in contact with the false amnion; it is the corium proper. Sometimes this adhesion of the amnion with the corium does not occur in its entirety, and there is a space left with a liquid accumulation which may continue up to full term. Probably every physician with broad experience in obstetrics has been called to see a woman at the beginning of labor, where the waters—they said—had ruptured, but in an examination he has found that this did not prove to be true, but the accumulation between the amnion and corium had ruptured. However, the specimen before us is clearly not one of that sort, because this membrane covers the cord and is entirely within the true amnion and extends from the umbilicus of the child to the attachment of the cord at the placenta; and we can account for it by no other theory than that there is a double amnion around this cord, one directly applied to the cord, containing the vessels and contents of the cord proper, the other fastened only to the cord at its junction with the placenta and at its junction with the umbilicus, filled with liquid—amounting to dropsy of the amnion. It is a peculiar formation that I cannot account for from what we are taught of the origin of the amniotic membrane.

Louisville, Ky.

*ADVANCES IN MEDICINE DURING  
THE LAST TWELVE MONTHS, WITH  
PARTICULAR REFERENCE TO THE  
ANTITOXINE TREATMENT OF  
DIPHTHERIA.\**

By J. LINDSAY PORTEOUS, M.D.,  
Vice-President of the Westchester Medical Society.

The last decade has produced more new theories in medicine having a practical usefulness than any of its predecessors, and the last year of the decade has been more productive than any of the previous nine. New modes of treatment, new kinds of medicine, and new uses to which they are applied, come upon us like an avalanche and, for a time at least, sweep away many of our pet treatments and scatter to the four winds of heaven our hard earned experience, and, may be, logically worked out theories. Within the last twelve months new explanations of the causes of disease and methods of combatting them have been showered upon us with such lightning-like rapidity, that only the man with iron nerves can withstand these onslaughts. Many of these will fall far short of the claims advanced by their advocates, and some of them already have; but notwithstanding that a great revolution in medicine has begun, whether for good or evil, time alone can prove, and it is the duty of all of us, to our profession and to the general public, to weigh carefully the *pros* and *cons* of all new theories. We must not rush forward hap-hazard at the first hint of one experimenter, but wait patiently till others, whose sole work it is to find out new remedies for disease, confirm it. The average practitioner has neither the time nor the opportunity to burn the midnight oil searching out hidden cures.

Some of the new theories have been proved to be facts and have come to stay—witness the thyroid gland treatment. Its wonderfully rapid effect upon myxedema

\* Read before the Westchester Medical Society, May 21st, 1895.

has been amply proved, and so far as I can learn, no case has been recorded wherein it has failed to relieve; yea, more than this, no patient who has been treated with it has in any way suffered from its effects. Not only in this disease does it act beneficially, but almost monthly, reports are published of its use in the treatment of other diseases. In lupus, psoriasis, in pityriasis rubra, and in certain forms of eczema it has worked wonders. I have used it with good effect in tabes mesenterica, in tubercular meningitis, and in the incipient stage of pulmonary tuberculosis; it has also proved beneficial in sporadic cretinism.

*Thymus feeding* has, within the past few weeks, been used in exophthalmic goitre with marked success.

*Extract of the gray matter* of the brain has made only slight advance in professional favor within the past year; in fact, although in a previous paper, which I had the honor of reading before this society, I reported a case of neurasthenic chlorosis which seemed to be benefited by its use, I fear that it is destined to die a premature death.

We will now pass on to what has caused more astonishment, and certainly greater happiness to the human race, than any other discovery in the healing art since Jenner introduced vaccination. No operation in surgery ever performed has caused the enthusiasm displayed by professional and laymen, when report after report was published pointing out the great decrease in the mortality of diphtheria under the influence of antitoxine. I am aware that some discredit the curative effect of antitoxine, but the rule is that those who have had the greatest experience with it are the most enthusiastic over it. In my own practice I have used it extensively; some of the cases were the worst I ever saw, and I have had no deaths. I have seen some disagreeable after-effects, such as ephemeral urticaria, followed sometimes with painful joints, but in no case have I seen any dangerous

conditions. No abscesses, no enlarged glands and no symptoms of thrombosis or septicemia.

Doubtless, you have all read of the death of a young girl in Brooklyn lately, after an injection of antitoxine. Some wished to attribute her death to the serum, but if I recollect rightly, the autopsy showed nothing whereby the serum could be held responsible. Dr. Park, the bacteriologist, has reported that he has experimented on guinea-pigs and rabbits with the same preparation without causing any untoward effects. Only the other day I heard of a case where a child was seized with a violent attack of chorea after its use, and immediately antitoxine was blamed for it. Now, this child may have been predisposed to the disease, and the weakened condition brought on by an attack of diphtheria might easily have stirred into activity the latent affection, making the predisposition a palpable fact.

Amongst the numerous questions which have arisen lately is this one: Are we to discard our diagnosis of diphtheria because the bacteriologist says he can find no Klebs-Loeffler bacilli? Certainly not. He would be a bold, not to say reckless man, who would allow a patient who shows all the time-honored clinical symptoms, to mingle freely with his neighbors, because the bacteriologist has reported "no bacilli of diphtheria." Nor would a physician be justified in isolating a person in seemingly good health because bacilli had been present in his saliva. Recently, I had examined some saliva taken from the fauces of a perfectly well nurse who was attending a case of diphtheria. The report of the bacteriologist was, "loaded with bacilli." Would I have been justified in isolating the nurse and injecting antitoxine? I think, gentlemen, few if any of you would allow your zeal for isolation to carry you so far as that.

Another question which has been, and is vigorously discussed, is: "Are there any conditions dangerous to life or injurious to health, following the administra-

tion of antitoxine, and if there are, are they of sufficient potency to counterbalance the good said to be gained by its use?"

These are important questions, not to be pigeon-holed without further thought, but to be thoroughly sifted and carefully studied.

In the *Medical Record* for February 9th, 1895, a report is given of a paper read by Dr. Hausemann at a recent meeting of the Berlin Medical Society, in which he denies the power of the Behring serum to immunize. He asserts that the Loeffler bacillus is neither the sole cause of diphtheria, nor is it always present in diphtheria. We all know that bacteriologists often fail to find the bacilli, when we know we have the true clinical symptoms of a genuine case. As I have already stated, the true bacilli may be present and none of the symptoms of the disease manifest. Hausemann also asserts that the Loeffler bacillus is present in rhinitis fibrosa without any diphtheritic symptoms. He further states that, by injecting Loeffler's bacillus culture, a new disease is created, namely, "Loeffler bacillus disease." Personally, after a fair amount of experience, I have failed to discover this disease. As to statistics, the same authority implies that the believers in antitoxine concoct them to suit the occasion, and that the treatment is by no means harmless, as affections of the kidneys frequently follow its use. As regards the latter statement, I may say that almost daily, for many weeks, I have watched most carefully *nine* children in the Leake and Watts Orphan Home, to whom I had administered the serum, and not a single one has shown either kidney or any other trouble that could be attributed to antitoxine.

Only a few weeks ago, Dr. Jos. Winters, a gentleman for whom I have the most profound respect, and whose experience and aptitude for correctly diagnosticating no one will gainsay, strongly condemned antitoxine, not only as useless for the purpose for which it was intended, but a re-

medy fraught with danger to the recipient. One of the principal reasons he gives for condemning it is, that "horse-serum dissolves human blood-corpuscles." We all know that this is taught by physiologists; but I am unaware that any physiologist has ever asserted that hypodermatically used, it was harmful. It was the very direct method of intra-venous transfusion that is alluded to, and even this is denied by good authorities. In a letter in the *New York Medical Journal*, of April 27th, 1895, Dr. Meltzer quotes Hayem as stating that there is no detriment accruing from introduction of alien blood into the peritoneal cavity, which certainly absorbs more rapidly than the subcutaneous tissue. In Dr. Winter's recorded speech, he is reported as saying that a physician then present almost lost his life by taking  $\frac{1}{100}$  of a grain of atropine. This very remark seems to my mind to prove the reverse of what it was intended to. This gentleman must have had an idiosyncrasy which made him intolerant to atropine. Are we forever to discard atropine because one patient was so constituted that he could not take that dose without showing poisonous symptoms? I think not. Even if the Brooklyn girl lost her life through an intolerance of antitoxine (which has by no manner of means been proved), are we justified in forever banishing this treatment, which has undoubtedly saved many lives? Such a strong stand taken by a man of Dr. Winters' reputation certainly should cause us to reflect and carefully watch the action of the remedy.

In February of this year, Mya, a prominent Italian physician, stated that after considerable experience with antitoxine, he concluded that some people attributed renal, cardiac and nervous complications to the serum without sufficient reason. His observations extend to over fifty cases, and the inconveniences caused had been insignificant. In four of the cases there was a scarlatiniform eruption; in one case, so like scarlatina that the patient was isolated, although the subsequent



course showed the true nature of the case. In two cases a rapid and evanescent urticaria was seen. The temperature sometimes was raised, and a general disturbance was noted. He says, "Most authors have attributed the eruption to the horse-serum." He emphatically states that the serum does not possess any demonstrable action upon the red blood-corpuscles. He believes that a vasomotor change produces the cutaneous manifestations, or they are due to an alteration in the lymphatic circulation. When there is fever, it is due to exaggerated personal susceptibility.

Among the fifty cases reported by Mya, there was one sudden death from cardiac complication, but he says, before the serum treatment he saw more cases of this kind than he does now.

Santucci, Mucci and Silva, all well known physicians, approve of the treatment. The latter has injected the serum into the veins in half doses. There were in those cases no signs of local irritation. Enlargement of the sub-maxillary glands was noted, and the membrane began to detach itself. When albuminuria or nephritis were present the serum did not aggravate this condition. Suppurative parotiditis occurred in one of the cases.

Variot's observations on the temperature and his deductions are interesting. He noted that 20 ccm. raised the temperature from one half to one degree, sometimes more. The action of the heart at the same time was quickened and the pulse-beat became more frequent. These phenomena were followed by cardiac asthenia and arrhythmia of the pulse. He considers that the artificial febrile action plays a certain part in the process of cure, being analogous to the normal febrile reaction seen after serious but curable diphtheria before the serum came into use.

Vierorat, another accurate observer, says that the mortality under the use of serum in his practice has been reduced from 67 per cent. to 14 per cent. He also considers that early treatment did not al-

ways prevent a fatal issue. Contrary to the last quoted authority, he noted a favorable action on the movements of the heart, and an absence of the disposition of the disease to extend to the larynx. He believes in the specific action of the serum.

I will ask your indulgence, gentlemen, a short time longer and quote to you two more fatal cases reported; one by Dr. Johanessen at the medical society of Christiana, January 9, 1895, and the other by Dr. Alföldi, in the Hungarian journal, *Gyógyászat*, of January 16, 1895.

Dr. Johanessen's case was that of a boy aged two years, suffering from spastic spinal paralysis. He received a quarter of a bottle of Behring's serum (600 units), December 9, 1894. This was followed on the four following days by a sharp diarrhea, but there was no rise in temperature and no albuminuria. On the 14th (five days after the injection), there were traces of albumin and indican. (Why indican is mentioned, I do not know, as all normal urine has it to the extent of from five to fifty milligrams in twenty-four hours. This quantity is perceptibly augmented in cases of intestinal obstruction, diffuse peritonitis, cholera, cancer of liver and stomach and pernicious anemia). The temperature was 103° F., and there was infiltration and redness at the site of puncture. From the 15th to the 18th, the child's condition remained much the same. An incision at the site of puncture gave issue to no pus. Death took place on the 19th, but a post-mortem examination revealed no trace of suppuration in the infiltrated area about the seat of puncture. The liver was pale, the spleen large and firm; the kidneys were rather pale, the intestine dilated the peritoneum injected, its mucous membrane stained with grayish-black spots; Peyer's patches were also injected and infiltrated, the microscope showing streptococci.

Three other children received preventive injections of the same serum at the same time without ill-effect. Now, if this child died from antitoxine and three other

children did not suffer from it, the one which died must have had an idiosyncrasy and the others not.

Dr. Alföldi's case was that of a girl aged three years. She received a preventive injection of 2 ccm. of Behring's serum (600 units) on January 16th, 1895. This was followed by depression and loss of appetite. On January 18th, the temperature rose to over 104° F.; the child complained of pains in the loins and there was considerable albuminuria. On the 19th, petechiæ appeared over the whole body, and on the 20th the child died. There was no autopsy.

All the foregoing symptoms are seen in some severe cases of diphtheria where no antitoxine has been administered, and therefore, the death cannot justly be laid to its charge.

In the *Lancet*, of February 9, 1895, Jessop describes two cases of diphtheritic patches on the palpebral conjunctivæ. In one case, a child of nineteen months, the upper and lower palpebral conjunctivæ of the left eye had each a patch of membrane, as also had the left side of uvula. The urine was albuminous. Three injections of Klein's antitoxine (6 ccm. in all) were administered. The membrane disappeared in five days, leaving no conjunctivitis, nor other conjunctival change. The second case, that of a child eight months old, had membrane on the palpebral conjunctivæ of both eyes, with muco-purulent discharge from the nostrils. Two injections of the serum were followed by entire disappearance of the membrane in four days. In neither of these cases was any local treatment used.

At the meeting of the German Medical Congress at Munich, last month, the discussion on the therapeutics of antitoxine was most optimistic. Those who had had the most experience with the treatment were the most enthusiastic. In fact, there was hardly a word of adverse criticism. Prof. Huebner, of Berlin, said that the general results of the published cases with which he was acquainted was, that three

thousand cases had been treated with antitoxic serum with a general mortality of twenty per cent.; the uncomplicated cases were numbered 181, with a mortality of ten per cent.

The statistics of Prof. Baginsky are still more striking. The mortality in the years 1890 to 1894, before the use of antitoxine, was 41.1 per cent. The number of cases treated by him since the introduction of the serum, to March 15th, was 525, and the mortality fifteen per cent. Prof. Wiederhofer said that in the period from October 1894 to the end of February 1895, he had treated three hundred cases with a mortality of 23.7 per cent. This compared well with the mortality in the five preceding years, during the same months, of 50.6, 45, 40.8, 49, and 56 per cent. respectively.

Prof. Ranke stated that the mortality in his private practice had fallen from 42 per cent. to 18.6 per cent. after using antitoxine.

Dr. Seitz, of Munich, had noticed among one hundred and forty cases treated with serum, an exanthem twenty-eight times; pain in the joints, eight times; accompanied by sweating, three times. All were transitory, and all have occurred when no serum had been used. He considers that there was no evidence of an injurious action upon the kidney.

I have taken up, perhaps, too much of your time with quotations, but I am anxious to prove that antitoxine is a great discovery and, therefore, people ought to be very careful before publicly denouncing it.

We may well marvel when we read, day after day, of the new discoveries in medicine, and we should feel proud of living in the nineteenth century, so prolific in discoveries of vast importance to the human race. Diphtheria is one of the oldest of epidemics, as Homer wrote of it about the year 900 B. C., and Hippocrates in 430 B. C. It was then known as *malum Aegypticum*. The long period of about twenty-eight hundred years had elapsed before any substantial approach to a cure had been offered, and although we are as

yet unable to say that **we have a specific**, we do seem to be within a **measureable** distance of one.

Another product of the same family as antitoxine, brought forth this year, is antituberculous serum. Paquin gives details of over twenty cases which he has treated with the serum. An increase of weight was noticed, cough and expectoration diminished; the appetite increased and the night-sweats lessened; and even cases with large cavities improved. The first to yield to treatment was the great prostration. The serum is prepared from horses much the same as for diphtheria antitoxine. The dose is ten drops at first; then thirty to forty, sixty or even more. No reaction was noted, and no accident except in two cases, where benign local abscesses appeared.

The treatment of carcinoma with erysipelas toxine has proved very successful in the practice of Emmerich and Scholl. They inoculate sheep with erysipelas culture and free the blood-serum from micro-organisms by filtration.

Pneumonia antitoxine has been studied experimentally for some time by Drs. G. and F. Klemperer, of Munich, but sufficient proof has not been made public to warrant its use in pneumococcus infection. The serum from the blister on a patient who had passed through an attack of pneumonia was used.

Typhoid fever has been treated with marked effect by typhoid-thymus extract by Frankel, Rumpf, and following them, Lambert.

We may ask ourselves the old question, Is the treatment entirely new? How many so-called discoveries turn out to be only improvements on time-tested traditional facts. In an article recently published, I ventured to suggest that "Mithridatism" of bye gone years was something of the nature of the present serum treatment. In the year B. C. 120 Mithridates (the Sun-given), sixth King of Pontus, lived in constant dread of being poisoned, and accustomed himself to all the

poisons then known. This produced a condition known as "Mithridatism." He had an antidote called a "Mithridate," which **was** in the form of an electuary supposed to **have** as its principal ingredient the blood of the Pontic duck. This particular duck was chosen because it was supposed to live on poisonous plants. The blood of the duck was thus saturated with the poison and became immune. Mithridates partook of the blood, evidently thinking that it would immunize him and prevent the poisons secretly given him from doing any harm.

Gentlemen, I am aware that I have trespassed upon your time too much already, but I would ask you still further to give me a hearing on what seems to me to be a therapeutic agent of great value. That agent is nuclein. For the benefit of those who have not paid much attention to the literature on nucleins and on nuclein therapy, I shall endeavor as briefly as possible to explain what is meant by them.

Nucleins are Nature's antitoxine. They have been studied at intervals for over sixty years. In 1831, by Braconnot; in 1838, by Quevenne; in 1844, by Schlossberger; in 1865, by Bechamp, and later by Hoppe-Seyler, Lubavin, von Jaksch, Plösz, Aulde and Vaughan. In 1878, Kossel proved that they had germicidal properties. Scientifically, nuclein is described as phosphorized proteid, the phosphorus existing as nucleinic acid combined with a highly complex basic substance. The available sources are, yeast-cells, yolk of egg, the spleen, the blood, the testicles, the bone-marrow, the brain substance, the thyroid and thymus glands.

Vaughan characterizes nucleins as the chief chemical constituents of the living parts of cells. The nuclein is that constituent of the cell by virtue of which this histologic unit grows, develops and reproduces itself. It is the function of the nucleus of the cell to utilize the pabulum within its reach.

It is pretty well proved that the power of the individual to fight disease is due to the influence of "*defensive proteids*." Now, it has recently been demonstrated that nuclein is one of the most effective proteids; and then it follows that if we can assist Nature to throw off disease by adding to her exhausted stock of nuclein, we will certainly accomplish much. Within the body, multi-nuclear white blood-corpuscles constantly produce the substance called nuclein (Aulde). It is known to possess antiseptic properties, and numerous observers have proved its efficacy in many diseases (Aulde). In my own practice I have seen nuclein work wonders in diphtheria, cholera infantum, ordinary diarrhea and tonsillitis. Recently, I have given it with much benefit in malaria; one case especially, in which quinine, boric acid, and Warburg's tincture had signally failed, was benefitted in a very short time by twenty drop doses of nuclein solution.

Its strongest advocates do not claim that nuclein does more than stimulate cellular activity, by increasing the secreting function of the white blood-corpuscles. It will not supply material for reconstructive purposes. So far as known, it is perfectly harmless, and I would strongly advise any of you gentlemen present to try it, especially in tonsillitis and malaria.

The dose of nuclein solution from yeast, prepared according to Vaughan's formula, is twenty or sixty drops, either hypodermatically or per orem. According to Aulde's formula, the dose of the animal nuclein is two to five minims hypodermatically on alternate days for malaria, anemia and chlorosis. In diphtheria, capillary bronchitis, and pneumonia the dose is one-third to one minim every hour or two.

Lastly, we may mention the pilocarpine cure for pulmonary tuberculosis, said to have been discovered and used successfully by Waldstein. This has not had sufficient trial yet to warrant our hazarding any opinion of its efficacy.

I know, gentlemen, I have tried your patience to the uttermost, and hope you will pardon me for occupying so much of your time. I assure you I have tried my best to condense my paper, but the subject is so vast and of so much importance that it was impossible for me to make it shorter. I thank you very much for your attention and trust that you may approve of my feeble efforts to epitomize some of the most important of the discoveries made during the Society's year ending May 21, 1895.

83 Warburton Avenue, Yonkers, N. Y.

### *MULTIPLE UTERINE MYOMATA— EXTRA UTERINE PREGNANCY.\**

By WM. H. WATHEN, A.M., M.D.,

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On the seventeenth of February, 1895, I removed these myomatous tumors at the Kentucky School of Medicine Hospital, from a married woman, aged about forty years, who had been suffering with the tumors for several years. I believe Dr. Rodman examined the patient two years ago, and then suggested an hysterectomy, but did not perform it. She was referred to the Hospital by Dr. Dunn, and in an examination I detected a tumor filling nearly the entire pelvic cavity, and wedged down so firmly that it could not be displaced in any direction. There was a little mobility of the uterus upon the right side. Above the symphysis pubis and to the right I could detect a pedunculated myoma. The urine was sent to Dr. Frank for examination, but he did not receive it, and no examination was made before the operation.

When the abdomen was opened, the tumor was found to be intra-ligamentous

\* Reported to the Louisville Clinical Society, and contributed to the AMERICAN THERAPIST.

upon the left side, with a pendunculated tumor arising from near the fundus of the uterus and protruding to the right. No tubes nor ovaries could be detected, and the tumor had separated the broad ligament on the left side down to its base and had unfolded the lateral half of Douglas' pouch and gone under the colon, separating the folds of the meso-colon, nearly to the bowel. The case seemed so unfavorable, and so difficult, that I at first decided that I would not attempt to remove the tumor. I examined further to see if I could remove the ovaries and tubes; this could not be done as they could not be found. I finally determined to attempt to remove the tumor. There was no trouble in ligating the broad ligament upon the right side; but upon the left side I could not ligate any part of it, so the investing capsule was incised and the tumors gradually enucleated. Instead of being one tumor there were many, as you will see, some small and some large. In what appears in the specimens to be a single tumor, you will find several together. When the tumors were all enucleated, the broad ligament upon the left side was ligated in sections and divided.

It is said by Dr. Krug and Dr. Pryor, who have had much experience in removing myomatous tumors, that these cases cannot be treated by the neude, and require total extirpation, as you cannot form a pedicle; but Drs. Frank and Rodman, who were present, will remember that I did not have much trouble in forming a pedicle and using the neude in this case. So the pedicle was treated extra-peritoneally. The operation was prolonged, but the patient left the table with a pulse of 75, and an hour afterward it was 75 to 80. The nurse reported that she passed urine in about the usual quantity, but upon further investigation I did not think she passed as much urine as is normal. The operation was completed at four o'clock, P.M., and during the night her pulse began to become accelerated, reach-

ing 125. The next morning I found her pulse 125 and intermitting. She continued with this pulse for three days, and then it increased in frequency to 140 and so remained until the time of her death. She passed urine after the first evening without the aid of a catheter; she passed gas freely within thirty-six hours; the bowels moved in forty-eight hours from an enema; she was perfectly flat for three and a half days; mind clear, and she took some nourishment. At no time was there any vomiting, and very little nausea. Her temperature, I believe, was not taken. About ninety hours after operation, the abdomen began to distend; she was given a saline which moved the bowels and gas passed freely. The bowels, however, became distended to a considerable extent, remaining so until death.

I could not positively account for the cause of death; it was a peculiar case to me; I was afraid I had injured the ureter and that water had escaped into the peritoneal cavity. Dr. Carl Weidner made a post-mortem examination, and I will read his report:

"The partial post-mortem examination held at your request on the body of the colored woman named ———, has proved the existence of the following conditions:

(1) Acute peritonitis, pretty well localized to the portion in the neighborhood of the abdominal wound and the stumps of the broad ligaments.

(2) A moderate amount of hemorrhage from the stump of the broad ligament on the right side (blood clotted).

(3) The abdominal wound was united on the peritoneal side, but there was no union of the muscles or the skin.

(4) Both ureters were perfectly pervious and uninjured. (I mention this point, because you were interested in the question.)

(5) Heart, seemed to be normal as to size and appearance of muscle and valvular apparatus, except the opening of the tricuspid valves, which is unusually large, admitting my four fingers very easily.

(6) Lungs: Left lung normal; right lung in a state of very severe congestion, if not true hemorrhagic infiltration.

(7) Kidneys: Both kidneys of normal size, but the capsule adherent in both, with slightly granular surface. Cortical portion rather narrow, and of rather pale, grayish color. Subsequent microscopical examination proves the existence of a diffuse nephritis.

(8) Liver is of normal size and is firmly adherent at the diaphragmatic surface, in consequence of a chronic peri-hepatitis. Liver shows a good deal of pigmentation and fatty infiltration.

(9) Spleen is firm and very much atrophied; about one-half the normal size.

The rest of the body has not been examined.

In conclusion, I would state in answer to your inquiry as to the cause of death, that in my opinion the condition of the heart and lungs possibly plays the most important role; that the nephritis as one thing favored the development of this condition, and further, that the peritonitis appeared as a secondary factor in the cause of death."

The peritonitis was circumscribed or localized, confined almost exclusively to the tissue that was injured in the operation and to the sigmoid flexure that came in contact with this tissue and became adherent at this point. There was no evidence of sepsis; no pus was found anywhere, and I do not believe this woman would have died had it not been for the trouble with the kidneys, lungs, heart or liver. I regret that the urine was not examined before the operation, because I am satisfied many deaths following laparotomy are caused by the action of the anesthetic upon the kidneys.

Case II—Ten weeks ago I was called to New Albany, in consultation, to see a woman who was supposed to have had a miscarriage a few days before. The history of the case was about as follows: The woman was thirty-two years of age, healthy in appearance, the mother of three children, all healthy. In her past history there were no indications of uterine or tubular trouble. She had never had a miscarriage, but last June gave birth to a premature child. Her menses had returned shortly afterward, and had continued at regular intervals until six or

eight weeks before I saw her. She had been bleeding about ten days before I was consulted; and this, with pain in the uterine region, caused the attending physician to believe she had had a miscarriage. She was pale and nervous, and was suffering considerable pain from pressure in the pelvis.

An examination per vaginam showed that the uterus was enlarged and was pressed anteriorly against the pubes by an accumulation in the sacral cavity, or Douglas' cul-de-sac,—a tumor as large as two fists. I did not see her again until a week ago, when she had recovered sufficiently to come to my office. I then found the tumor had decreased in size more than one-half, and the uterus was more movable, but the tumor was distinctly adherent to the uterus. I suspected retro-uterine hematocoele, but I could not make positive diagnosis, and when I operated to-day, remarked to the gentlemen present—Dr. Frank who assisted me, and several others—that I did not know positively what I was operating for. When the abdomen was opened and the adhesions separated down toward the uterus, a half pint of bloody looking liquid flowed out through the incision. After separating the adhesions there was found a tumor behind the uterus completely filling Douglas' pouch and adherent in every part, which when enucleated was found to be filled with a large blood clot; the walls of the tumor I present for your inspection. The ovaries and tubes were twisted around deep down on the lateral walls of the cavity, from which the tumor was separated. The tube on the left side showed where it was connected with, and had ruptured into the sac, clearly showing the trouble to have been an extra-uterine pregnancy. Some of the decidua is still in the ruptured part of the tube. The other tube was not much diseased, but the conditions were such that I removed the ovary and tube; because I was fearful adhesions would again form, and another operation would be necessary, owing to the extensive adhesions that had been separated and the great repair of tissue that would have to take place.

There was nothing unusual in the operation, and the patient is doing well.

1336 Third St., Louisville, Ky.

## **A CONSIDERATION OF MILK AND HOW A PURE SUPPLY CAN BE OBTAINED.\***

By HENRY E. TULEY, M.D.

Clinical Assistant to the Chairs of Practice and Diseases of Children, Kentucky School of Medicine.

The writer is of the opinion that no apology is needed for bringing before this body so homely a subject as milk. The question of artificial feeding of infants has always been a serious one, for as shown by Cross at the International Congress of Hygiene and Demography at Budapest, the mortality of nursing children increases in proportion to the poverty of their parents, and of those artificially fed the death rate is approximately six times greater than that of the breast-fed. This fact is sufficient warrant for an investigation and a serious consideration of the chief element of the infant's diet.

From physical or other reasons less important, many infants cannot be nourished by Nature's food, mother's milk. The poor little one is fed on dried milk or foods of which milk enters partly into their composition, but it fails to thrive; perhaps, too, cow's milk alone is used, with like failure; this latter is perhaps in part due to the fact that the necessity of so altering the cow's milk as to make it conform as nearly as possible with the milk from the mother is not recognized. We must remember that cow's milk can be so modified as to approximately resemble the standard, mother's milk. All eminent authorities upon infant feeding are unanimous in the opinion that cow's milk should form the basis of all rational artificial feeding, adjusting the fats, carbo-hydrates and albuminoids to the digestive capacity of the individual. With this statement then as a working basis, that cow's milk variously altered is the proper artificial food for infants, it behooves us as physicians to look after the production of this milk, that we may guard against the diseases so liable to be caused by an impure milk-supply.

\* Read before the Louisville Academy of Medicine, May 20, 1895, and contributed exclusively to the AMERICAN THERAPIST.

A consideration of the following statements from an eminent authority, Dr. Henry L. Coit, of Newark, N. J., will prove the importance of a serious investigation of the subject.

1. "There is a general lack of robust health in city children, most of whom are fed on milk contaminated with stable filth."

We all know how many artificially fed infants will not thrive on any food, particularly on cow's milk no matter how altered, and we have but to examine the bottoms of our milk-pitchers or glasses to see the stable filth deposited there, to ascertain the cause of this disagreement; or to look at the average dairy, or see the milking process, to learn how this reaches the milk.

2. "We know there is a lack of physical resistance in the city children to epidemic disease, resulting from a want of suitable food to conserve their highest development."

This is especially true of the children in the humbler walks of life.

3. "Ignorance and greed in those engaged in the production of milk prevails, and its delicate nature is disregarded in the commercial expedients for its sale."

We know that there are few dairymen who are not in ignorance as to the production of milk. It is a well known fact that cows fed upon distillery-waste, hulls, screenings, wet or dry brewer's grain, oil-cake, and sour ensilage produce an impoverished milk, though increasing oftentimes the milking capacity of the animal, and such milk is very harmful when fed to infants. This is one of the most open infringements of our present law, for how common a sight is it for residents of this city to see a procession of one- and two-horse swill covered wagons on their way to or from the large distilleries in the different parts of the city; this being an instance of greed, the element, cheapness of feeding.

I am aware that a recent investigator has endeavored to show that milk from distillery-waste fed cows is not impure, but the fact that in every state in which

there exists a milk law, there is a clause expressly prohibiting this kind of feeding, shows that the investigator referred to is in error.

4. "Micro-organisms are found in milk after it is drawn, but never in a healthy udder."

These bacteria and micrococci are found in such countless numbers that milk which contains 100,000 in a cubic centimetre (15 drops) is considered moderately clean. In milk which has been properly cared for the number of bacteria can be reduced to 3,500 to each cubic centimetre. The cleanest milk in New York City contains 100,000 bacteria in every cubic centimetre, and in Boston 300,000. Milk before it spoils contains probably hundreds of millions of germs, which may represent as many as forty different varieties. Frequent examinations have shown many micro-organisms present in newly drawn milk, and we have but to see an early morning milking in the average dairy—in the dark, under dirty cows, from dirty udders, by dirty hands, in a foul dairy—to understand where the myriads of germs come from. We have but to see the ordinary delivery wagon with the five or six gallon milk-cans, perhaps but half filled, being churned over our rough streets in the hot summer sun, to realize how rapidly these micro-organisms reproduce in this excellent medium.

5. "The records of infectious and contagious epidemics have often shown them to be indigenous to the dairy."

As an illustration of the likelihood of milk being a disease-bearing agent, I have but to recall the evidence brought before the State Board of Health of Kentucky, in the spring of 1893, in which, to the satisfaction of the Board, an epidemic of typhoid fever was directly traceable to the milk from a certain dairy in this county. A similar instance which has caused widespread comment, was an epidemic of typhoid fever in Montclair, N. J., caused by milk. The report of the State Board of Health of Massachusetts contains records of several epidemics of typhoid fever trac-

ed to dairies. Another instance is the epidemic of scarlet fever reported in a recent issue of the *British Medical Journal* as being traced to the milk-supply, the milk being infected through human agency, the cows not being suspected as suffering from any disorder. Out of the 200 cases reported, all but thirteen obtained their milk from the suspected dairy, the type of the disease being mild, as is usual when conveyed by this agent.

6. "The so-called cholera infantum and the summer diarrheas among children are now regarded by authorities to be largely due to milk-infection."

We no longer speak of teething as a cause of gastro-intestinal disturbance, nor use such vague terms as summer complaint, or cholera infantum, as a name for the severer troubles, but we speak of acute and subacute milk-infection (Seibert).

7. "One or more cases of bovine tuberculosis could probably be found in one-third of the dairy herds of the United States, and one-sixth of the race have transmitted to them by constitutional inheritance a suitable soil for the tubercle bacilli to grow in."

Perhaps one of the most important points to be considered is tuberculosis and its transmission by means of milk. That milk is the carrier rather than meat is because milk is taken as a rule in the uncooked state, and is generally consumed by infants; but that milk is a carrier of the tubercle bacillus is a fact beyond peradventure. That apparently healthy animals are the subject of tuberculosis, unrecognized by inexperienced observers, is also a fact, as may be instanced by a mention of the experience of the State Commission of Lunacy in California, in their finding the cause of the number of cases of tuberculosis in the State Hospital at Stockton. A prize herd of milk cows was submitted to the tuberculin test; those reacting were killed, and in all instances the diagnosis was confirmed by a post-mortem examination.

Dr. Frederick Osgood, Professor of Veterinary Surgery in Harvard University, contributes a valuable article in the *Boston*



*Medical and Surgical Journal* for July 19, 1894, upon tuberculosis in cattle, and with your kind indulgence I will read a few extracts to show how great is the prevalence of this dread disease in cattle.

"Any reliable estimate of the percentage of tuberculous animals in a given area cannot be given, but that it exists to an alarming extent no one can deny.

"The milk from any animal suffering from tuberculosis of the mammaræ always contains the bacillus, and the milk from an animal suffering from tuberculosis, even though the udder is not involved, may, and often does, contain the bacilli.

"The only positive means of diagnosis to within a very short time was a microscopic examination of, or inoculative experiments with, the nasal, vaginal or mammary secretions, whereby the presence of the infective germ could be demonstrated, which methods could not be put into general application.

"As a result of the researches of Dr. Koch, Prof. Guttman, of the Veterinary Institute at Dorpat, Russia, experimented upon cattle, and found (and I would particularly call your attention to this point) the high reaction in tubercular animals equally constant; since which time tuberculin has been used with almost uniform satisfaction in the detection of tuberculous cattle."

The following are his conclusions:

"1. All agree that the sole exciting cause of tuberculosis is the bacillus or spores.

2. Tuberculosis prevails to an alarming extent among our dairy cattle.

3. While it may occur in any organ or tissue of the body, some one or other of the glandular tissues is almost universally involved.

4. The tubercle bacillus is constantly present in the diseased tissue.

5. Tuberculosis localized in the mammary gland is of not uncommon occurrence in cattle. The milk from such animals is found to contain the bacilli and is capable of producing the disease. The remedy for such a condition of affairs can only be provided by legislation which, to be efficient, must be stimulated by public opinion. Radical changes should be made in a large majority of the stables where animals are confined, thus providing suitable ventilation and drainage."

Even butter (*American Medico-Surgical Bulletin*), which for a long time has been considered impossible to be the carrier of the tubercle bacillus, has been shown by experiments made by Prof. Roth, of Zürich, to frequently contain them.

With these important points considered I cast about for relief, for some means of obtaining pure milk. My first thought was that it might be possible through the medium of the law. With some difficulty I have obtained the laws governing the inspection of milk in the cities of Boston, New York, Philadelphia and Newark, and several letters from men interested in the subject in other cities. A pamphlet has been received even from Bombay, India, where the milk is partly under municipal supervision. In all of the cities named, laws exist and are enforced as to the standard of pure milk (88 per cent. water, 12 per cent. milk solids, 3 per cent. fats), and this standard is maintained by means of efficient inspections and vigorous prosecutions of those whose milk falls below the standard.

None of you are perhaps aware that there exists in this city an ordinance regulating the sale of milk. This is ordinance 461, and the Sections which pertain to milk are as follows:

Sec. 10. No person shall bring or send into this city for sale, any milk without a permit from the Board of Health, such permit being furnished gratuitously by said Board to all applicants on condition that none but pure and undiluted milk be sold within the city limits, and subject to the approval of the Health officer.

Sect. 11. All milk-wagons shall have the name of the owner and number of the wagon painted thereon plainly and legibly.

Sec. 12. All grocers, bakers, and other persons having or offering for sale, milk, shall at all times keep the names of the dairymen from whom the milk was obtained posted up in a conspicuous place wherever such milk may be sold or kept for sale.

Sec. 13. No person shall offer or have for sale in this city any unwholesome, watered, or adulterated milk, or milk known as swill-milk, or milk from cows that for the most part are kept tied up in stables, or that are fed on garbage, swill, or other deleterious substances, nor any butter or cheese made from such milk.

Sec. 15. Any person or persons violating the provisions of any section of this Ordinance, on conviction thereof, shall be deemed guilty of a misdemeanor and

shall be fined for each offense not less than twenty nor more than one hundred dollars in the city court.

In the city of Boston, there has existed for a number of years an official known as the "City Milk Inspector." In the very complete laws of Massachusetts relating to the "Sale and Inspection of Milk," are detailed the duties of the inspector and his corps; all of which, according to the last reports received, has resulted in establishing, in comparison with that of formerly, an excellent milk supply.

It has been found that the average dairy, with proper attention to feeding, watering, housing, exercising and choice of the herd, can produce in all instances milk of the proper standard. But as before stated, though the standard of the milk may be maintained chemically, what avails it if there is not some provision looking to the *production* of this milk?

We have seen, as noted, that the cleanest milk in New York, which is sold after complying with the laws as regards chemical analysis, contains 100,000 bacteria to the cubic centimetre, and in Boston 300,000; so any law to be effective must be more stringent and far reaching than any now in force.

But what is the use of appealing to legislation when our existing laws are not enforced? I was recently informed by a city official that, in the experience of the department, it was impossible to obtain a conviction in any milk case, even when the evidence was sufficient, because of our present inadequate laws.

Even though a general reform were contemplated, whether municipal or sanitary, in this city, we know the history of such efforts; complaints are generally given one hearing and then buried by being referred to a committee, never to be heard of again.

The law being unavailable for the enforcement of preventive measures to be applied to the production of milk by all dairymen, and the pressing need of a source where an absolutely reliable and pure milk-supply can be obtained being apparent, the most excellent plan devised by Dr. Henry L. Coit, suggests itself as a bright star for our guidance toward a pure milk-supply.

The preventive measures as related to the *production* of milk will be best illustrated by a brief outline of the functions of a medical commission recently organized and now engaged in active work in

Essex County, N. J.

This commission premises that a purely commercial institution never gains the ear nor secures support from the scientific world. Their purpose is to influence the production and proper handling of milk intended for clinical uses, which they seek to accomplish by a rigid legal supervision of methods imposed by them upon a reliable dairyman. The code of requirements is stringent and binding. It includes ample sureties for its fulfillment, necessary forfeiture clauses, at erritorial limit for the sale of the product, provision for the compensation of experts employed by the commission, namely, a chemist, a bacteriologist and veterinary surgeon. It controls the construction, location, ventilation of buildings, and their drainage. It requires in the stable cleanliness and order, and prevents the use of water from wells or springs holding surface drainage. It regulates the health of the herd, excluding any which are judged by a competent observer to be tuberculous, or found in a state of ill-health prejudicial to the herd. It provides for the proper housing and shelter of the animals, together with their grooming and kind treatment, and the prompt removal of waste products from the stable. It restricts the use of all questionable or exhausted materials for food. It governs the collection and handling of the milk by insisting upon a proper regard for cleanliness as viewed by the physician and sanitarian, as it relates to the animal, her surroundings, the milker, the vessels, and the association of persons handling the milk with sources of infection. It controls every step in the collection of the milk and its preparation for shipment, and adds to the product every detail of care known to promote its keeping qualities or favor its safe transportation. The motives of the commission are disinterested, and they forbid themselves any pecuniary rewards. The experts employed by the commission are paid by the dairyman. The regular reports of these officers to the commission are the basis of their approval of the product, which, in the form of a certificate acquires a commercial value to the dairyman.

It is the opinion of the writer that by such a plan as this, we can educate the other dairymen to follow the requirements laid down in the agreement for the production of "certified milk."

111 W. Kentucky street, Louisville, Ky.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### MEDICAL TENETS AND MEDICAL SCIENCE.

Our editorial brethren occasionally show evidence of mental perturbation, and lash themselves into a fitful fury, when commenting upon the possible dangers, the obvious disadvantages, the serious evils, the probable misfortunes, the evident deception, the reckless pessimism incident to, and characteristic of, those who aspire to promote medical science by the upholding of tenets. Now, this is wrong; attempts at conversion, when manifested in this peculiar manner, are always, or nearly always, unsuccessful. What matters it if the success of the Christian religion has been attained by the most fierce and unscrupulous warfare, whose conquests have been marked by rivers of blood and whose onward march has left the richest territories desolate and barren? Modern science sees no necessity for a repetition of these follies in order that success may follow. We are a peaceful people. Just as the modern Gatling and the more recent Maxim guns have made warfare dangerous, so onslaughts upon so-called tenets may eventually become so dangerous that the scientific fanatics

will be constrained to withhold their pens. Just as medical men are at present unable to fathom the mysteries connected with the efficacy of drop doses of castor oil, not to mention the revelations anxiously awaited in regard to tuberculin, antitoxine and nuclein or alexin, it may be the part of wisdom to re-examine the various and apparently conflicting tenets before consigning them utterly to the "demnition bow-wows." In the language of Macauley, "If we cannot explode them, let us explain them," and there will be the end of them. This topic would furnish an interesting subject for discussion during the coming twelve months, and contributions from impartial critics will receive considerate attention.

### A NOTE ON THE TREATMENT OF MORNING DIARRHEA.

In the last number of this journal there appeared an abstract of a paper on the treatment of morning diarrhea, by Dr. FRANCIS DELAFIELD, in which a number of useful suggestions were incorporated. Although a large number of remedial agents were recommended, it was finally stated that the remedy giving the most satisfaction was castor oil in doses of from five to ten drops. Apparently, the advocacy of this remedy, in the doses mentioned, is an innovation, and it would require an expert physiologist to give us a satisfactory explanation of its mode of action. Still, it is no more exceptional than the use of drop doses of balsam copaiba for the relief of urticaria.

The first object in calling attention to these two methods of treatment is, to emphasize the need of a further study of many, if not all, the more commonly used medicaments, simply because these illustrative cases indicate that experimental physiology has long been on the wrong track. In order that a remedy may be useful, it is not necessary that in medicinal doses it should demonstrate that it possesses any marked, or even material

physiological effects. This is a point upon which the writer has long deliberated, and given the most careful clinical consideration, and he hopes, now, that the profession will in time take this into consideration in deciding upon the merits of remedies which they undertake to test clinically. The importance of this must be apparent when it is stated that physiological medicine, in the strictest sense, is nothing more than mechanical medication, and too frequently results disastrously to the patient, as the writer has often pointed out, especially in the case of using digitalis.

The second purpose in directing attention to morning diarrhea is because of the obscurity relating to its pathology. For all practical purposes, the disorder may be divided into two classes, namely, that affecting children and young adults, and the second, persons who have reached the age of forty or over. In the case of younger persons, there may be many incidental causes, such as uterine disease in women, improper selection of food-stuffs, climatic influences, malaria, or the continued use of purgatives containing aloes in some form, usually in the form of proprietary medicines. In persons who have attained the age of fifty or upwards, if careful examination be made, a history of one or more of these influences may be discovered, and generally, in addition to this, we shall find a disordered condition of the hepatic function with a tendency to sclerosis. Within the last ten years a number of these cases have been seen from time to time, and some have remained long enough under observation to warrant this claim, since they finally succumb to disease in which the liver disturbance constituted the chief factor. In confirmation of this view it is only necessary to mention the frequency with which such derangement of the alimentary tract occurs among those who habitually use alcoholic stimulants; but the disorder occurs independently of this, and may be found in those who are abstainers, and we there-

fore come to the conclusion that other causes must be at work in producing this pathological entity.

Perhaps some of our readers have met with this class of cases, and could enlighten us upon the most approved treatment of the disease, in which case our columns are open for their contributions.

### ALARMING MORTALITY IN DIPHTHERIA.

No thoughtful physician can read the contribution of Dr. PORTEOUS, published in this number, without making a mental note of the alarming rates of mortality which are *admitted* by those who are now so enthusiastic over the employment of antitoxine for the relief of diphtheria. Take, for example, the statement that the rates from antitoxine medication are not in excess of fifteen per cent., and we are told by these reporters that their statistics under previous routine treatment ranged from forty to, say, seventy per cent., and as a matter of course, they have become enthusiastic advocates of the new regime. The question then very naturally comes up as to why our current literature and text-books place the mortality rates so low as twenty to thirty per cent.?

There lies before the writer (no pun intended), the report of the Philadelphia Board of Health for the week ending June 1, and 8th, respectively, showing the mortuary rates for diphtheria for the two weeks to be thirty and forty per cent., respectively, and yet antitoxine is used here very liberally. If we are to judge by published reports of reputable physicians of this city, the employment of antitoxine is not only general, but its great value has been repeatedly shown, and therefore the mortality tables ought to be materially changed from those of previous years. If it be true that the average rate of deaths from diphtheria in Philadelphia be reduced but one-half by the employment of antitoxine, and this rate remains at thirty-five per cent., then the rate for previous years

must have been as high as seventy per cent.

It is doubtful, if this high rate ever obtained; but in view of the claims put forward for antitoxine, we must endeavor to find an explanation for the remarkable reports which are appearing almost daily in medical literature. There is, the writer believes, one explanation which will fully cover the entire ground, namely, the modern methods in diagnosis. When it is assumed, as proven, that the presence of the Klebs-Loeffler bacillus constitutes true diphtheria, the profound mystery is cleared up at once. Dr. PORTER has merely hinted at this phase of the question, by claiming that the mere presence of the bacillus is not sufficient to establish the diagnosis, but it is doubtful if all the advocates of antitoxine medication are so cautious and conservative.

The foregoing remarks are intended as a warning to modern investigators, since it would be manifestly unfair to permit such statistics as have been recently published to go unchallenged, inasmuch as it would bring the present generation of physicians into ridicule with the profession in the near future. In recording these statistics, the facts should be emphasized in regard to the true character of the disease under treatment, and no case should be allowed in this class until a culture of the bacillus found had been tested by subsequent inoculation. Another point to be borne in mind in this connection is, that antitoxine is not effective in what are known as "mixed" cases; that is, where we have to deal with an invasion of the streptococcus, and therefore all such cases should be eliminated. Indeed, antitoxine has no place in the treatment of such cases. Again, statistics show beyond a question of doubt that antitoxine is a serious hindrance to recovery from diphtheria when complicated with streptococcus infection, and although it may be indicated in the early period of the disease, the occurrence of this complication precludes the employment of the modern remedy.

### "CERTIFIED MILK."

The term, "certified milk," strikes the ordinary reader with quite as much force as the expression, "standard Galenicals," although it expresses far more than is implied in the standardization of the ordinary fluid extracts. As will be learned from the practical communication of Dr. TULEY, in this number of the journal, certified milk is a product which has been obtained under the most careful observation of competent instructors as to hygienic and dietetic regulations for the cows, details in milking and subsequent cooling, and the later transportation. The idea of obtaining a pure milk-supply by throwing around its production and storage all the necessary safeguards, is not altogether an Utopian undertaking, but it is not within the possibilities of the present century, at least in this country. According to a report in one of our secular papers, the total amount contributed towards eleemosynary institutions by Americans since the first of the present year amounts to the stupendous sum of ten millions of dollars, but of this enormous sum not a single dollar has been specifically granted for the prevention of disease.

Many physicians consider it a most unfortunate thing that so much money is donated to hospitals under the guise of charity, since it has a direct tendency to curtail their legitimate incomes, although all physicians are alert in their endeavors to prevent disease. Evidently, this is one feature, and a most important one, which has been thus far overlooked. It is time, therefore, that physicians should make an effort to direct the attention of benevolently inclined persons to the advantages which would certainly accrue from donations especially intended to prevent disease; and as it has been demonstrated that serious danger is threatened from an impure milk-supply, a moderate amount devoted to the experimental effort of producing a pure milk-supply would be most opportune. A hundred thousand dollars judiciously invested in an enterprise of

this character in proximity to any of our large cities would create a plant which would be self-sustaining, and if successfully conducted, would prove an incentive to individual effort to undertake like operations.

Such an undertaking would be far superior to investing money in hospitals for consumptives, because these institutions could be supplied direct with the certified product; it could also be sold to the poor instead of the highly diluted and deleterious product now forced upon them, thus preventing the crowded attendance at the free clinics, and the later transfer of these poorly nourished and subsequently poisoned patients to this hospital for consumptives. Indeed, such an "operation" would readily command the attention and patronage of the rich, since they are usually alert to discover the advantages arising from the use of pure and unadulterated products. In milk, they have long ago learned, to their sorrow, that they pay the best prices and often obtain the worst article. The AMERICAN THERAPIST will be delighted to honor the first public-spirited man or woman who will come forward with the pecuniary requisite, and it will likewise take pleasure in honoring any and all imitators in this laudable work.

### THREE YEARS IN MEDICAL JOURNALISM.

Early in the spring of 1892 the idea of establishing this publication was conceived, with the purpose of recording in convenient form some practical details relating to the clinical applications of drugs, being convinced that the physiological precepts which then obtained were calculated to retard rather than advance scientific medicine. For a number of years the editor had taken careful notes of the clinical effects of various medicaments, administered singly and in combination, and became convinced that the true conception of medication must rest upon a study of the influence of the drug or remedy

upon cell function and cell life. At that time the study of cell action in recovery from disease was an unknown factor; but as an effect of the interest awakened by the writer on cellular therapy, the subjects of cellular activity, cell function and cell life are now almost universally employed in the literature of the day. This shows, evidently, that the principles outlined in connection with the study of cellular therapy have taken deep root in the minds of the more advanced members of the profession, and it may be regarded as a favorable omen of the results attending further consideration of the subject.

Notwithstanding the favorable attention accorded the doctrine of cellular therapy and the wide-spread influence which it has upon medical literature, the precepts advanced are but yet imperfectly understood by the majority of medical men. Unfortunately, the writer has been unable to give the full attention its importance merits; but with the aid of others who are also interested in the advance of scientific medicine, the reputation of the Journal has been established and its future success assured, and with the opening of the FOURTH VOLUME the value of the AMERICAN THERAPIST to the clinician will be notably increased.

### EDITORIAL.

IN OUR February issue we called the editor of the New Orleans *Medical and Surgical Journal* to account for reprinting an article on Malaria, by Dr. E. B. Sangree, original in our September, 1894, issue, and crediting it to "Dr. Sanger" and an Arkansas journal. In polite terms we asked for a correction. It has not been made, so far as we know. The editor of a deservedly prominent journal should be more conscientious, and should observe the ethics of legitimate journalism with greater nicety.

THE *Milwaukee Medical Journal* is edited or managed by some wicked person who is not above abstracting desirable matter

from other journals and palming it off on unsuspecting readers as *original*. In the May issue of this publication we came across two paragraphs taken verbatim from our May number without credit, beside a one-half column selection inadequately credited to "Therapist." This practice is reprehensible, Mr. Man; it is not worthy of an honorable journalist.

THE *Journal of Materia Medica*, issued from Fort Wayne, Ind., prints certain matter, original and selected, under the heading of "General Miscellany." The editor makes this department fairly interesting, but this must be an easy task if he appropriates all his "original" matter from other journals, as in the case of the one-half column item "Antitoxin Arouses Antagonisms," taken word for word from our April issue, without credit.

WITH NO LITTLE surprise do we note that Dr. Duglison appropriates for publication in his May issue of the *College and Clinical Record*, an abstract from an original paper on the Treatment of Hydrocele, by Dr. Ap. M. Vance, in our November, 1894, number, without credit to our journal; and this slight is aggravated by the appearance on the same page of the *Record* of a little note on Depilatories, also original with us, and also printed without credit. Why, oh why, is the AMERICAN THERAPIST thus slighted?

## Correspondence.

### NUCLEIN FOR EXOPHTHALMIC GOITRE, MALARIA, AND BRONCHA-PNEUMONIA.

TO THE EDITOR:

SIR.—You will remember, I wrote you some time ago for information regarding the uses of nuclein solution in general, and its probable curative effects, in exophthalmic goitre, in particular. I am now pleased to inform you that my patient is practically well. She was rapidly going down when I began the nuclein, notwithstanding I had used dessicated thyroids and other approved remedies persistently for several months. She had taken nu-

clein but a short time when her appetite and nutrition began to improve; the nervous symptoms abated; the action of the heart was calmed and she rapidly gained in weight and strength. She has taken *no* medicine for the past month.

I also used it in a case of malarial poisoning of long standing. The patient, a woman of 35 years, was feverish, cachectic and anemic. I gave her four granules every 4 and 2 hours for six weeks before there was any appreciable change, excepting a gradual emaciation, when suddenly one afternoon she called for potatoes and onions, and ate three of the former and two of the latter. (I had tried her on several of the prepared foods before, but could not get her to eat enough to do any good.) The next day at about the same hour she called for the same dish and ate it. From that on she gradually improved in nutrition and color. Of course, she will never be a strong woman, and, in all probability, will suffer a relapse and die from the old trouble; but, in my opinion, she was saved from immediate dissolution and her life prolonged and made more comfortable, by the nuclein, when nothing else would have benefitted her.

Now for one more illustrative case. Was called to see a little patient three years of age, suffering from broncho-pneumonia, complicated with serious digestive and brain troubles. Her temperature ranged from 102 to 104 for 3 or 4 days after I saw her. Gave one granule,  $\frac{1}{11}$  gr., every hour. The cough soon became loose and less frequent, and in a few days ceased entirely; the other symptoms gradually subsided also, and she is now improving rapidly, after being very low and unconscious for nearly two weeks.

Could mention other cases where I have had good results from nuclein, but these are the severest cases in which I have used it. Am now waiting for a case of diabetes to come along to give it a trial.

R. E. BUCHANAN, M.D.

Independence, Iowa.

## Current Literature.

**AN IMPORTANT CONTRIBUTION TO DIPHTHERIA ANTITOXINE LITERATURE.**—One of the weightiest pieces of testimony in favor of the antitoxine treatment of diphtheria appeared in the last number of the *Archiv für Kinderheilkunde*. It is an article by Dr. Adolf Baginsky and Dr. Otto Katz. Dr. Katz gives very full histories of a hundred and sixty-seven cases of diphtheria treated with the Aronson Antitoxine. The authors say, that at the outset they were skeptical concerning the antitoxine treatment, but that when they had seen case after case of the gravest kind take a most favorable turn after it had been employed, they came to the conclusion that it was time to reconsider. Their present impression is, that while the antitoxine is not a cure-all, it will exert the most favorable influence in the majority of the worst cases of diphtheria. —N. Y. *Medical Journal*, May 18, 1895.

**THE USE OF ZINC STEARATE IN THE TREATMENT OF GONORRHEA.**—Morris Booth Miller, M.D., Instructor in Surgery in the Philadelphia Polyclinic, contributes this practical report of successful application of an improved vehicle for antiseptics to the Philadelphia *Polyclinic*.

The treatment of gonorrhea in its various stages, both locally and constitutionally, admits of such wide differences of opinion among surgeons in its minor details, that the suggestion of a form of treatment used by the writer with what has seemed to him satisfactory results, may prove of value and secure a wider trial in the hands of others.

While the bacteriologists have pointed out the *gonococcus* of Neisser as the probable specific microbe of this condition, they unfortunately have failed so far in their experiments to outline a form of treatment which will enable us with certainty and dispatch to stamp out this disease at its outset and thereby prevent its

unpleasant complications and oft times serious results. Indeed, on the contrary, they have shown the greater resistance that the gonococcus possesses against antiseptics compared with other pyogenic bacteria, while the investigations of Bumm and others have indicated that the original seat of infection is in the submucous layer of the urethra and that its presence in the pus of gonorrhea is at a later stage. However, in spite of these objections, the usual local treatment in this disease involves in some form or other the use of antiseptics, and while the antiseptic which will fulfill all the indications by securing the destruction of the gonococcus *in situ* without at the same time acting injuriously on the delicate, inflamed mucous membrane of the urethra, has not been determined, yet there are very many which in clinical experience have proved of greater or less value.

Among those antiseptics which possess relatively feeble bactericidal qualities, but which have the merit of being astringent in their action, the writer desires to call attention to zinc stearate, either alone or in combination with other drugs, such as menthol, acetanilid, boric acid.

The use of this preparation in this affection was first suggested by the peculiar advantage it has of becoming closely intimate with any mucous surface upon which it is placed, thus permitting the more thorough action of the zinc, of which it is an active compound, as of other therapeutic agents with which it may be combined. As it is relatively insoluble, the difficulty of its local application was overcome in the following manner: A straight glass tube of suitable caliber and length was prepared with lateral openings at short intervals at one extremity, while the other was slightly funnelled. The smaller openings were then closed with carbolated petrolatum, and the tube thus made was filled with zinc stearate, preferably in combination with menthol. The bladder having been emptied, the urethra was carefully cleansed with weak solution



of hydrogen dioxide and the glass tube introduced and passed through the penile urethra. By means of a plunger, which can readily be prepared by wrapping cotton on a probe until it fits the tube, the tube can be emptied by withdrawing it from the urethra while the plunger remains in the same relative position. The result is a urethra fully packed with the zinc stearate. The procedure is scarcely painful, and the influence of the menthol is to allay the subsequent slight irritation. The meatus being covered with the usual piece of absorbent cotton, the patient is instructed to abstain from passing urine as long as possible, and the usual directions as to diet, etc., are given to him. The relief experienced by the patient is striking and immediate, and, in the writer's experience, it has rarely required more than three or four applications at intervals of a day, to secure entire relief.

A gradually accumulating experience of two years in dispensary and private practice has shown the striking value of this treatment in gonorrhea in its early stage, while in cases of longer duration it would still seem to hold a place. As a substitute for the harsh and much criticized "abortive" treatment with silver nitrate, its entire harmlessness should commend it.

**NUCLEIN SOLUTION IN SCARLET FEVER.**—Dr. J. C. SMITH, of Woolstock, Iowa, contributes the following interesting report to the *Alkaloidal Clinic* for May, 1895:

One day last month I was called to see Mary S., aged eight years. I found she had been sick about thirty-six hours. She had a well developed rash, a very sore throat, tonsils much swollen and covered with a creamy looking deposit; temperature  $103\frac{1}{2}$ , pulse 130. Diagnosis, scarlet fever. I dissolved twelve granules of aconitine, gr. 1-134, and twenty-four of nuclein, gr. 1-12, in twenty-four teaspoonfuls of boiled water, and ordered a teaspoonful given every half hour until fever dropped or sweating should occur. With this I gave a spray of hydrastis (Merrill's

colorless), peroxide of hydrogen (Marchand's) and water, equal parts, to be used every two hours.

The next morning, I found my patient with a temperature of 100 degrees, pulse 92, throat clean and less sore; so I continued the nuclein and the spray, and in three days the throat was well and my patient nearly so.

I suppose I carried the contagion home to my son, aged one year, for he was taken sick one afternoon, with a temperature of  $103\frac{1}{2}$ , and pulse 170. I prescribed aconitine, gr. 1-134, two granules, with nuclein gr. 1-12, twelve granules, in twenty-four teaspoonfuls of boiled water, and gave a teaspoonful every fifteen minutes till his fever was 101 degrees, then every half hour until it fell to  $99\frac{1}{2}$  degrees. He felt quite well the next morning; had no fever and no sore throat, but had a faint rash. I would think I might be mistaken in the diagnosis but for the typical strawberry tongue that followed in a day or two. Recovery was uneventful.

The quick subsidence of a severe sore throat in the first, and the non-appearance of sore throat in the second case, I attribute to the nuclein. I have used nuclein in pneumonia with great success.

**PAPAIN AS A REMEDY FOR TENIA.**—(*The Medical News*, October 6, 1894.)—In a letter, Dr. Bartholow, of Philadelphia, mentions the successful use of papain in a case of *tenia solium*. The remedies most successful in the expulsion of this parasite are so nauseous, and to young children often dangerous, that any drug free from these objectionable features should have a trial. In the case related by Dr. Bartholow, after the unfortunate host (an adult) had tried successively the various remedies ordinarily employed, and met only with disappointment, he was placed temporarily on papain, taking ten grains three times a day after meals. After a few days, segments in considerable numbers were passed. A terebinthinate preparation was then given, which had previ-

ously quite failed, and was followed by a dose of castor oil. Vomiting was the only result, but within twenty-four hours an immense *tenia solium* was passed complete, coiled up upon itself and motionless. Dr. Bartholow thinks it possible that the papain exerted a toxic influence on the parasite.—Dr. Blackader, in *Montreal Medical Journal*.

**BROMALIN** (Bromethylformine);—A substitute for *inorganic bromides*. Formula:  $(CH_3)_3N_2C_2H_4Br$ . It contains 32.13 Br, 67.2 KBr. Two grammes ( $\frac{1}{2}$  drachm) equal 1 gramme ( $\frac{1}{4}$  drachm) ordinary *bromides* in reducing number of fits in epilepsy. May be employed in much larger doses than ordinary *bromides*. One epileptic patient took about 8 grammes (2 drachms) daily for six weeks without manifesting any skin eruption or other untoward effects. Appetite remained good. Author confirms the good effects obtained by Féré in epilepsy. Dose for adults: 10 grammes ( $2\frac{1}{2}$  dracms) divided in 10 parts, daily. For children: 10 grammes ( $2\frac{1}{2}$  drachms) dissolved in *distilled water* 10 grammes ( $2\frac{1}{2}$  drachms); *syrup of bitter orange-peel*, 90 grammes (3 ounces). A teaspoonful twice daily. (LAQUER, *Neurol. Cent.* Jan., 1895).—*Univ. Med. Journal*.

**TO AVOID DANGER IN VACCINATION.**—We quote the following pertinent and competent rules to be observed in vaccination, from an excellent paper by Dr. G. M. KOBER, in the *Va. Med. Monthly*, April, 1895:—At a time when the terror for the disease which formerly prevailed among the public has, through the agency of vaccination, declined and given place to a dangerous apathy in the unprotected, it is especially important that the facts be presented and the dangers reduced to a minimum. The latter can be done by scrupulous attention to the following points:

(1.) To employ the utmost care in the selection and preservation of the lymph. The vaccinifer, whether bovine or human, must be absolutely healthy.

(2.) Animal lymph is usually taken from the calf on the fifth or sixth day, and should be exclusively used except in delicate subjects, and when it fails to take after repeated trials.

(3.) Human lymph should be taken from primary cases only, and from children between three and six months of age, and whose health and family history, after a thorough examination, is beyond suspicion.

(4.) The vesicles from either source must be perfect, well filled, and free from an areola. Jenner discarded all vesicles which showed this areola on the sixth or seventh day, in order that inflammatory products might not contaminate the virus.

(5.) Care must be taken in opening the vesicles not to draw any blood, the virus must be perfectly limpid and odorless, and the slightest admixture of blood or pus renders it unfit for use.

(6.) Flies must be kept away, and the utmost cleanliness must be observed during its collection, in the use of instruments, ivory points and other receptacles of the virus.

(7.) The skin of the arm to be vaccinated should be disinfected with a solution of corrosive sublimate (1 to 1000). A fresh needle previously disinfected over a portable spirit-lamp should be used for each vaccination and then thrown away. Sterilized water should be used in moistening the virus on ivory points.

(8.) Clean clothing and avoidance of scratching must be enjoined to prevent the access of erysipelas and other septic germs, and a careful examination of the vaccine vesicles should be made between the sixth and eighth days.

**CAN ANYONE reconcile for us this apparent inconsistency:** How can a "lithia spring water," vaunted as "the most powerful anti-lithic before the profession"—which, by the way, is untrue, because piperazine and lycetol are many times more powerful solvents than lithia—be a most effective remedy for uric acid affections, and at the same time a sparkling and refreshing table water? We are inclined to believe the latter claim; but that granted, the remedial property is imaginary—a sort of agent for suggestive therapeutics.

## Book Notices.

**THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX:** A work of reference for medical practitioners. Thirteenth year. Cloth, 8 vo., pp. 648. New York: E. B. TREAT, 1895. (Price, \$2.75).

Those of our readers who are familiar with the successive issues of this admirable work of reference will be pleased to hear that the present edition is an improvement upon its predecessors, the text pages being liberally illustrated with a number of very acceptable wood-cuts. The editors and contributors number thirty-five in all, and include some well-known authors on both sides of the Atlantic. Some of the more important sections may be mentioned, as follows: Dictionary of new remedies, electro-therapeutics, dictionary of new treatment in medicine and surgery, surgery of the bladder, new medical and surgical methods in the treatment of mental defects, intestinal surgery, infantile paralysis, diet in diseases of the stomach, sanitary science, progress in pharmacy, new inventions, closing with a list of the more prominent books of the year.

A cursory examination of the pages shows that in general the work has been brought up to the date of publication, except in the department of therapeutics. For example, the editor of this department has failed to notice more than a single article upon the subject of nuclein medication, although nearly a dozen appeared during the past year and previously. Potassium bichromate is introduced as a new remedy, although it has been in use for quite a number of years. It is brought to the attention here for the purpose of pointing out the investigations of Prof. Fraser (incorrectly spelled, Frazer), of Edinburgh, relating to its value in the treatment of intestinal affections, although the teachings of Dr. H. T. Webster, of Oakland, preceded his report by several years. And, besides, Dr. Webster records its em-

ployment in a number of disorders aside from intestinal troubles. Evidently, this information was gleaned from the AMERICAN THERAPIST, since this is the only reference to our journal in the volume. The editor expressed some surprise that it should have occurred to Prof. Fraser to use this exceedingly irritant substance in the treatment of this class of affections, and takes occasion to say that "mistakes are likely to arise unless the principles governing the application of such remedies are clearly understood."

Any intelligent and practical physician who will study carefully the introduction to "New Remedies" in this work, and then turn to the short reference to potassium bichromate will find here sufficient "food for reflection" to cover the entire expense of the book, and we therefore take great pleasure in commending it to the profession.

**BOOK OF DETACHABLE DIET LISTS:** For albuminuria, anemia and debility, constipation, diabetes, diarrhea, dyspepsia, fevers, gout or uric acid diathesis, obesity, tuberculosis and a sick-room dietary. Compiled by JEROME B. THOMAS, A.B., M.D., Assistant Bacteriologist, Brooklyn Health Department, etc. Philadelphia: W. B. SAUNDERS, 1895, (Price, \$1.25).

As indicated by the above detailed heading, this work is intended to aid the physician in selecting a suitable dietary for those who may come under his professional care, and as the recommendations are of an exceedingly practical character, it is hoped the book may find a large sale. The matter of diet, while of the first importance, is too often left with the nurse, or the relatives of the patient, and as a consequence, it is usually reduced to a starvation basis. When a patient is suffering from any illness, acute or chronic, it is absolutely necessary that the work of the digestive apparatus should be reduced to the lowest possible point, which can best be accomplished by ordering food-stuffs that are appropriate and nutritious; but only those are to be

administered which are concentrated, and to meet the debility of the digestive apparatus, it may be advisable to have this partially pre-digested. Coarse food-stuffs, or that which is difficult of digestion, are always contra-indicated, and from a brief consultation of these pages, in which the selection for different diseases is grouped on separate pages, it is only necessary to tear out the leaf, check those articles which are approved, and hand it to the nurse for guidance. By this means much time and labor are saved the physician, and the directions are complete. This is a step in the right direction, and the profession is placed under obligations to Dr. Thomas for his excellent compilation.

**TRANSACTIONS OF THE ANTISEPTIC CLUB.** Reported by ALBERT ABRAMS, a Member of the San Francisco Medical Profession. Illustrated. Cloth, 8 vo., pp. 206. New York: E. B. TREAT, 1895. (Price, \$1.75).

The object of this report is to poke fun at the ultra-followers of the antiseptic craze which has swept over the world in the last decade, and while the plots are sufficiently mirth-provoking to excite our risibilities, the records are not of that spontaneous character to arouse more than a ripple of surprise. Our author is pretty hard on the organic extract "fellers." According to the illustration, a man entering the profession in early life had long desired to become a great and shining light in the surgical firmament, but being of a retiring disposition he found it impossible to make any headway until he had received five injections of organic juice obtained from a lion, when the leonine expression of the face became unmistakable, the whiskers on his neck looked "shaggy," and he was lionized by the ladies, while his confreres voted him "the king of beasts." It will be apparent that the moral has been carefully studied, and it is quite probable that we shall find occasion to inquire if this line of medication has not been surreptitiously adopted by others besides the San Francisco medicus.

## PUBLICATIONS RECEIVED.

Two cases of Pseudo-Hypertrophic Paralysis in Brothers. By ARCHIBALD CHURCH, M.D., of Chicago. Reprint, 1895.

The Prevention and Treatment of Ophthalmia Neonatorum. By CHARLES H. MAY, M.D., of New York. Reprint, 1895.

The Pre-tubercular and Pre-bacillary Stages of Consumption. By CHARLES MANLEY, M.D., of Denver, Colo. Reprint, 1894.

A Case of Chronic Peritonitis, with Intestinal Abdominal Fistula—Enterorrhaphy—Recovery. By F. H. WIGGIN, M.D., of New York. Reprint, 1894.

The Value of Aero-tonic Treatment in our Cured Nose, Throat and Chest Patients; with remarks on some suitable winter resorts. By J. MOUNT BLEVER, M.D., of New York. Reprint, 1893.

The Edison Phonograph and the Bettini Micro-Phonograph. By J. MOUNT BLEVER, M.D., of New York. Reprint, 1892.

On the Therapeutic Value of Spermine. By G. KRIEGER, M.D., of Chicago, Ills. Reprint, 1894.

Naso-Pharyngeal Fibroid; with report of a case; By JOHN E. BACON, M.D., of Wellsboro, Pa. Reprint, 1895.

Speculative Lawyers and their Relation to Speculative Doctors. By CHARLES H. MERZ, M.D., of Sandusky, Ohio. Reprint, 1895.

"With us ther was a Doctour of Phisik." By CHARLES H. MERZ, M.D., of Sandusky, Ohio. Reprint, 1895.

A Short Sketch of the New York Medical College. By the late E. H. DAVIS, M.D.

This is an interesting history of this institution, of particular value to historians and to the alumni. Copies will be mailed to graduates free on request; address: Z. Scott Davis, 25 West 119th St., New York City.

*Medicine*, a Monthly Journal of Medicine and Surgery; HAROLD N. MOYER, M.D., Editor. Geo. S. Davis, Publisher, Detroit, Mich.

The initial issue of this journal appeared in April; it is the successor of the *American Lancet* and *Western Medical Reporter*, both discontinued. The new journal presents a good appearance, and opens its career with six original papers—excellent, by good authorities, and well illustrated—and a review of Progress of Medical Science, divided into departments, each edited by a specialist of repute. With such a make-up as standard, under control of an experienced writer such as Dr. Moyer, aided by his representative staff, *Medicine* is certain of a foremost place among current medical journals. Our best wishes are tendered with expressions of most distinguished consideration.

THE *Index Medicus* was discontinued with the April issue. We learn of this with regret. Mr. Geo. S. Davis, of Detroit, published this valuable record for over ten years, and with singular persistence he stood an average loss on the publication of five hundred dollars annually. With an even larger deficit, of about two thousand dollars, in view for the coming year, he was obliged to give it up. He deserves the sincere thanks of the profession for his long continued liberality. And now let the American Medical Association take up the work!

## Miscellany.

"PRESCRIPTION SPECIALIST" is the title now taken by pharmacists who have many prescriptions to compound, and who claim special qualifications and conscientiousness.

AIROL.—This new topical agent is a basic galate of bismuth (*Univ. Med. Jour.*) in which one molecule of iodine is replaced by a molecule of hydroxyl. According to FAHM (*Corrbl. für Schweiz. Aers.*, April 15, 1895) it is a siccative of the first order, giving up its iodine readily and without the disagreeable odor of iodoform. He has used it for more than a year in numerous cases without observing any untoward symptoms.

TRICYCLES FOR PHYSICIANS.—A correspondent of the New York *Sun* offers this suggestion: Why doesn't some physician of New York or its suburbs catch up with the progress of transportation and substitute for his "doctor's buggy" a tricycle propelled by him who would otherwise be his driver? Such a tricycle, made with a barrel body large enough to accommodate the physician and his tools, and to shelter him in all kinds of weather, with a saddle at the back for his man to pedal from, would not be very heavy and could easily be propelled over any ordinary roads or streets at a fair rate of speed. Its keep would be nothing, and its convenience would be far beyond that of the ordinary buggy. There are laundry tricycles, package tricycles, and a lot more; why not a doctor's tricycle? As they are bound to come some time what's the use of waiting?

WHAT THE CHILDREN EAT.—The habit some mothers have, when seated at table, of asking, "What would you like, Georgie?" "What will you have, Helen?" instead of helping the children to some portion of suitable food and take it for granted that they will eat of it and be satisfied, is a most potent element, (says the editor of *Annals of Hygiene*) in the downward training towards sensuous gratification and the establishment of a love of appetite in a child's character. A child thus treated grows to think he *must* have what he *likes*, whether it is good for him or not. It is not strange that an appetite thus pampered in childhood becomes uncontrollable in maturity. The natural, unperverted taste of a child will lead him to eat with a relish that food which is best for him.

The child's appetite can be educated to enjoy all wholesome foods, if mothers are true to their duty; but like the formation of all traits of character, this training will be easiest accomplished at the beginning of life. "It is difficult to turn the course of the great river, but that of the small stream at its source may be easily changed."

ASEPTIC CATGUT.—R. H. Cunningham gives these directions in the N. Y. *Medical Journal* (*Univ. Med. Jour.*):—Wind commercial surgical catgut on a glass spool, not too tightly, and soak for two days in a mixture of equal parts of alcohol and ether, to thoroughly remove the grease. Rinse in alcohol for a few moments, and place in a small jar, with a tightly fitting cover, containing enough of a mixture of equal parts of formalin and alcohol to submerge the catgut. After several days remove the catgut and wash out the formalin by soaking it several times in fresh alcohol, or, preferably, by boiling it for half an hour in normal saline solution. Place it in alcohol for preservation.

A QUICK METHOD FOR THE FILTRATION OF A SMALL QUANTITY OF URINE.—According to Dr. LOUIS FAUGÈRES BISHOP, of New York, for a long time it has been a problem to know how, with the apparatus usually at hand, to obtain quickly and easily a small quantity of clear urine from a cloudy specimen in order to make the usual test for albumin (*Boston Med. and Surg. Journal*, April 25, 1895.) The following plan has proved extremely easy and satisfactory in his hands: A small quantity of the cloudy urine is placed in a test-tube, and the mouth of the test-tube plugged with cotton with a moderate degree of firmness. A second test-tube is placed with its mouth to the first. The position of the tubes is now reversed so that the one with the urine is bottom upward. The upper tube is now carefully and gently heated over the flame of a Bunsen burner or an alcohol-flame, and the expansion of the air above the urine immediately forces it through the cotton plug, and the filtered urine collects in the lower tube.—*Univ. Med. Jour.*

BREAD SUBSTITUTE FOR DIABETIC PATIENTS.—Dr. R. T. Williamson, in *British Medical Journal*, gives the following formula for diabetic bread: Mix 2 ounces (62 grammes) of desiccated cocoa-nut powder with a little water containing a small quantity of German yeast. Make the mass into a sort of paste, and put in a warm place, for half an hour or longer. The small amount of sugar contained in the cocoa-nut is almost entirely decomposed by the fermentation produced by the yeast, and the cocoa-nut paste becomes spongy. Add 2 ounces (62 grammes) of aleuronat, one egg beaten, and a small quantity of water, to which a little saccharin has been dissolved, and mix well until a dough is formed. Divide into cakes and bake in a moderate oven for twenty or thirty minutes. Aleuronat is a yellowish powder containing 80 to 90 per cent. of vegetable albumin and only 7 per cent. of carbohydrates. It has been strongly recommended by Professor Ebstein for diabetic patients, but, except by the foregoing method, is difficult to prepare for diabetic food.

This formula is good, but not utilizable in this country because the proprietary flour—aleuronat—is not obtainable. We suggest that a bread nearly identical with above can be prepared by taking good American gluten flour into the formula in place of aleuronat. Gluten flour containing less than 10 per cent. starch is readily obtainable.

# The American Therapist.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### ZYMOTIC DISEASES AND THEIR MODERN TREATMENT.

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#### I.

In undertaking a series of articles upon a subject of so much importance, I fully appreciate the responsibility, and it is not without diffidence that the following remarks are offered to the readers of this journal. As can be readily understood, a considerable portion of the material comprising these articles will be culled from the writings of others. The work will involve a considerable amount of research and careful study of the writings of those who have had a wider experience than myself. Where my own personal observation is available, I shall endeavor to place the same before my readers in a clear and succinct manner. My object is to have the up-to-date literature of those diseases written in such a way that the least possible amount of trouble will be necessary to enable the reader to grasp the entire subject. If I fail in this, the chief object of my papers will be futile. In some of the diseases, I shall compare the old theories of causation with the new, and the old treatment with the modern.

The rapid strides which have been made during the last few years in pathology and bacteriology have only been equalled by the new modes of treatment and the large additions to our therapeutic *armamentarium*. Although many previous decades have been fruitful of theories as to the

causation of disease, none can equal the present for the number of successful methods of treatment introduced.

To Pasteur, Lister, Koch, Roux, Behring, Aronson, and a host more of Germany's sons, is due the honor of raising medicine to the present pinnacle of fame, never before reached. Nay! they have accomplished more; they have put us on the high road to still greater achievements in the future which will, doubtless, through time, almost entirely banish the so-called zymotic diseases from the land.

The word, zymotic, introduced by Dr. Farr, of London, in 1842, is an unfortunate one. It is derived from the Greek word, *ζυμωω*, *I ferment*; but as commonly accepted, it does not imply that at all. Even Dr. Farr, himself, has to explain the meaning of the word, "to denote the poison of epidemic, endemic and contagious diseases." The graphic language of Dr. Farr, regarding this class of disease may be quoted as follows: "The diseases of this class distinguish one country from another—one year from another. They have formed epochs in chronology, and as Niebuhr has shown, have influenced not only the fall of cities, such as Athens and Florence, but of empires. They decimate armies, disable fleets; they take the lives of criminals that justice has not condemned; they redouble the dangers of crowded hospitals; they infest the habitations of the poor, and strike the artisan in his strength down from comfort into helpless poverty. They carry away the infant from the mother's breast, and the old man at the end of life; but their direst eruptions are excessively fatal to men in the prime and vigor of age. They are, emphatically, the *morbi populares*."

What could be a more complete account of this class of disease? The list of these acute, infectious diseases which are communicated through the air and water, has been large; but as our knowledge increases and our means of investigating become more thorough, it will (and does), like the rolling snowball, gain in size as the cycle of years goes on. Phthisis pulmonalis and pneumonia have recently been added to the list, and no doubt, the far-reaching microscope will add others ere the year is ended.

The cause of all those diseases—which was called poison—will undoubtedly yet be proved to arise from bacilli, or living organisms, capable of being cultivated, and when given in the pure state, capable of causing each its own disease.

The manner in which these so-called zymotic diseases are contracted is interesting. The germs may pass into the air-passages, and if their favorite location is the mucous membrane, and that membrane, from an abrasion or an unhealthy condition, is ready to receive them, there they will propagate; or, they may pass into the stomach or intestine by means of water or milk containing them, and there be taken up by the various glands and through them passed into the blood; or, they may pass into the circulation directly through a wound, as for example, a snake-bite, or a bite from a dog suffering from hydrophobia.

The prophylaxis of this class of disease, as far as internal medicine is concerned, has long since proved useless. The much vaunted belladonna as a prophylactic in scarlatina has proved a myth and should be consigned to oblivion—and is, by all those who recognize the germ theory of disease. At the same time, we are not to discard the many precautions laid down for guidance to prevent the spread of disease. In isolation and disinfection we have two powerful aids which ought never to be neglected. We must avoid the contact of the discharges of any of these diseases with an abraded

surface. Long years ago, Fontana, Segalas and Majendie proved that not only when the poison was introduced into the veins, that all the phenomena of poisoning were accounted for, but also that the veins absorbed it. Coleman removed blood from an ass till it was nearly exhausted, and then transfused from a glandered horse, blood from the carotid artery into the jugular vein of the ass. This rapidly produced severe and fatal glanders in the latter animal. In further proof that the ass was infected, he used its blood in other animals and produced both glanders and farcy. Scarlatina, syphilis and measles have been produced by inoculation with the blood of patients laboring under these diseases.

Andral maintained that when poison is introduced into the blood, certain alterations take place in its physical condition. The serum and clot are incompletely separated, so that the clot is consequently large, almost filling the vessel into which the blood has been poured. It is easily torn, broken down, and reduced to a state of diffuence because its consistence is inconsiderable. It is remarkable for the absence of buff, which is rarely met with in typhus, measles, scarlatina or smallpox. In confluent smallpox it does sometimes exist. When there are large collections of pus, the buff is soft and gelatinous, and by expression of the serum, is easily reduced to a thin pellicle. The defect of fibrin may be the cause of so frequent hemorrhage in typhus fever, scarlatina, diphtheria and diseases dependent upon morbid poisons.

Aitkin classifies the various zymotic diseases as follows:

Order I. Miasmatic diseases, from *μιασμα*, a stain, which comes from *μιαίνω*, I contaminate.

Order II. Enethetics, from *εν* and *θετος*, placed, introduced. This term was introduced by Dr. William Farr to denote disease produced by inoculation or infection, *enethetici morbi*.

Order III. Dietic, from *διαίτα*., diseases arising from food.

Order IV. Parasitic, from *παρσιτος*, corn or food, or freely, I eat by the side of it.

Modern bacteriology has exploded many of these theories. For years they have worked well, but soon, no doubt, they will not have "a leg left to stand upon." I cannot understand, however, how the fourth of these disorders should come under the head of zymotic disease, either in the original meaning of the word, or as that given by Dr. Farr. The other three orders are, strictly speaking, almost the same; all arise from infection or contagion.

As the chief object of the present and succeeding papers is to collect evidence of the modern treatment of disease, and in some instances to compare the old with the new, it is not for me to go into a study of the pathology of the various infectious diseases farther than is necessary to prove that the new departure from the antiquated *regime* of treatment is in many cases right, and will add new lustre to the already luminous last decade of the nineteenth century.

The question arises, Are we to consider the bacteriological discoveries of the present day a *sine qua non* in diagnosing infectious diseases? Great though these discoveries are, they are too few and the experience too limited for us to discard entirely our old ways of diagnosing; moreover, the time required to make a bacteriological examination is often so long that the disease would gain much headway, and much valuable time would be wasted before treatment was begun. Again, these examinations might prove very misleading. Only very recently, a German authority (adverse to antitoxin in diphtheria) found Klebs-Loeffler bacilli in the lungs of a patient. Are we to believe that this patient had diphtheria?

On the 28th of May last, the result of a very interesting series of experiments was read by Drs. Thomson and Hewlett, before the Royal Medical and Chirurgical Society of London, on the micro-organ-

isms in the healthy nose. The result of these experiments was at variance with the opinion of many physicians. In their researches, these gentlemen find only two papers bearing upon examinations of the healthy nose; all other references to the healthy state were merely incidental in the course of researches on diseased conditions; but as "doctors differ," we need not be astonished that the results were most diverse, both as to the varieties and abundance of the micro-organisms met with.

Loewenberg and Hajeck were the only two who found a paucity of bacteria in the nose—all the others recording a greater or less variety and profusion. One observer found the streptococcus of Fehleisen in one out of every five healthy individuals. Another found the diplococcus pneumonia (Fraenkel-Weichselbaum) once in every four observations; the same observer often met with bacillus pneumonia (Friedlander), the streptococcus pyogenes and the streptococcus pyogenes aureus, not only in considerable number, but in pure culture. Drs. Thomson and Hewlett did not, in their examinations, try to differentiate the organisms met with; they only wished to find out whether or not bacteria were present.

Their conclusions are, that a distinction must be made between the vestibule of the nose and the proper mucous cavity in all bacterioscopic investigations, because the former is not the nose-cavity proper, and is lined with skin and furnished with hairs and sudoriparous and sebaceous glands. They consider that the neglect of this distinction may account for the discrepancy in previous observations on the subject. They assert that in the dirt and crusts of mucus and debris deposited among the fibrillæ of healthy subjects, micro-organisms are always present most abundantly. They likewise claim that the reverse is the case on the Schneiderian membrane—not that they are always completely absent, but never plentiful. They found, however, that in eighty per



cent. of their observations, none were found, and the mucus was completely sterile. They further conclude that the occurrence of pathogenic organisms must be so infrequent that their presence on the Schneiderian membrane can only be regarded as quite exceptional.

To those of us who are busy practitioners, the above conflicting opinions are very confusing, and show us that we must not accept of the opinions of any *one* observer, however noted he may be, but must patiently watch the progress, not of theories alone, but of practical, reliable results.

Let us now consider the diseases coming under the head of zymotic, or more preferably from a modern standpoint, acute infectious diseases.

The latest addition to the list is pneumonia. It may be defined as an acute, infectious (often epidemic), disease of the lungs accompanied by inflammatory action, with a tendency to resolution. In Gardner's Medical Dictionary, published in 1847, it is defined as "inflammation of the lungs, characterized by fever, difficulty of breathing, cough, and sense of weight and pain in the thorax." The treatment recommended by the same authority, and the one most popular at that time was, "to begin with large and free bleeding;" also, it was considered right to thoroughly evacuate the bowels and give largely of antimonials," to promote the discharges from the skin and lungs. Heroic doses of tartar emetic were strongly advocated. Digitalis was ordered as proper to lessen the activity of the circulation. Now-a-days, we wonder how any victims of this treatment ever survived. The digitalis seems to be the only redeeming quality of it. It was also urged that after the febrile symptoms had subsided, counter-irritation was most useful.\*

\*When we come to study the mortality rates in pneumonia at the present day and compare them with results obtained by the aggressive treatment as described by Dr. Porteous, it is astonishing that no great advance has been made in the treatment of this disease. No one will seriously

In 1892, Niemeyer wrote, "It is subject to more or less well-defined periodic fluctuations and sometimes appears as if it were epidemic; while its presence has been observed to be very coincident with that of typhus fever." Niemeyer, as far as I can find out, was the first to suggest that it ever came as an epidemic.

Is pneumonia infectious? In *Bolnichnaia Gazeta Botkina*, No. 29, 1890, Sokoloff writes in the most positive manner that it is. His opinion bears weight, as it is based upon two thousand three hundred and sixty cases. He considers that in hospitals it is transmitted from patient to patient. He believes that every hospital should have a special ward for pneumonia patients, and that when it appears

attempt to dispute the claim that the generation of physicians who passed from the stage fifty years ago were not "wise in their time," and the present seems to be an appropriate time for pointing out the physiological basis of the treatment then employed.

In the first place, it is now well known that bleeding produces leucocytosis. When the leucocytic function is arrested or temporarily suspended, micro-organisms multiply, and as a consequence, the aggregate of toxin output is manifestly increased. The old doctors thought they were "drawing off the poison," but they were indeed doing something of far greater importance and value to the patient ill with pneumonia. By relieving blood-pressure, the multi-nuclear cells were enabled to exercise their inherent property, producing and distributing throughout the economy the so-called defensive proteids, of which nuclein is the principal.

In the second place, What could be more in accordance with our modern physiological teachings than the administration of purgatives—to cleanse the alimentary canal, and although this particular notion was frequently carried to extreme limits, it harmonizes with our conception of the influence exerted upon the human economy by septic infection through the intestinal tract.

And, thirdly, the use of antimonials has its physiological significance, since we know that these products tend to lessen the activity of the circulation, and even admitting that this is secured too often at the expense of the patient's strength, it is not too much to suppose that the old method of treatment, under proper restrictions, might be used now with benefit in certain cases of pneumonia. Ordinarily, in the opinion of the writer, the exhibition of digitalis in pneumonia is of questionable utility, but under this method, its benefits cannot be questioned, since it counteracts the debility produced by antimony, by maintaining an influence upon arterial tension.

The secret of the plan may then be summed up in a few words, *vis*: Leucocytosis, through venesection, purgatives as a precaution against auto-infection, tartar emetic to reduce the activity of the circulation, and digitalis to maintain arterial tension.—[EDITOR.]

in a typhoid patient, he should be immediately isolated and the ward disinfected. In the *London Lancet*, Vol. 1, 1891, Oliver, of Newcastle, reports three cases of infective pneumonia occurring in one family.

Cases are not wanting to prove that the disease has spread from the fumes of the wash-tub, or from coming into contact with bodies of those who have died of it. One case was mentioned in the *Lancet* for February, 1891, where the medical man in attendance contracted the disease from a patient. This epidemic was very fatal, eighteen out of twenty-nine dying. In the *British Medical Journal* for July 21, 1894, Dr. Thomas, of Margate, England, reports three cases in one family. The son, aged 26, was attacked on the 12th of April and died on the 14th of the same month. The daughter was seized on the 20th of April and recovered, but the mother was taken ill on the 26th of April and died on May 3d. In my own practice, recently, I had a brother and sister attacked with pneumonia within a few days of each other. I could recount numerous reports, proving without a doubt that the disease is infectious.

I have already stated that free blood-letting and purgation were the principal modes of treatment, and within the past year the same treatment has found advocates; but recent advocates reason that by taking away blood in quantities, the amount of tox-albumen is lessened. Our fore-fathers did not give the same reason for bleeding; they only said that inflammation was a determination of blood to a certain part, and by taking blood from the general circulation the quantity of blood was lessened in the part affected. We ask, Is the amount of tox-albumen which comes away in the blood sufficient to do good? Or, is the risk of debilitating the patient not too great to the proportion of benefit which may accrue from it? We say, decidedly, yes. It is a case of robbing Peter to pay Paul; or in other words, it is drawing upon the credit of the body

for a present need, leaving it hopelessly weak and utterly unable to recuperate.

Most authorities now concede that we have not yet an antidote for this disease, that our main object is to support the patient's strength until Nature works a cure. We read that pneumococcus cultures have been successfully made and an antitoxin has been used with success, but as yet we have not had sufficient experience in its use to warrant recommending it as a part of our therapeutic *armamentarium*. Our principal endeavor must be to support the flagging heart, to increase the nervous sensibilities, to eliminate the specific poison and the products of retrograde metamorphosis. Some say strychnine does all of these, while others claim that sodium chloride is all-sufficient. Huchard thinks nothing equals ethyl alcohol with digitalis. In my own practice, I prefer a combination of digitalis, chloral hydrate and ammonia. A record of fifty successful cases recently published makes me still uphold the restorative treatment taught by Bennett a quarter of a century ago. Although chloral was not then used, it has been proved to be of great service in this disease. It diminishes, and ultimately abolishes all reflexes; it allows the patient to sleep and thus preserve his strength; it dilates the arterioles, allowing the free flow of blood to flush away the stasic elements; and the power of the morbid excitement is gradually overcome as the healthy nutrition of the parts asserts its right and once more establishes itself. Again, if the disease is caused by a coccus, bacillus or any kind of microbe, the very fact that the dilatation permits a flush out with phagocytes, such flushing must tend to cut short the disease.

I have endeavored in this paper to give a kind of synopsis of zymotic diseases in general and of pneumonia in particular, and trust in the succeeding papers of this series to be able to give at least an outline of the ancient and modern treatment of of so-called zymotic diseases.

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## PHOSPHORUS IN THE TREATMENT OF ACUTE PNEUMONIA.

By S. W. WETMORE, M.D.

A brief dissertation on the treatment of pneumonia necessarily involves a study of modern therapeutics, but it would be time illy spent to recapitulate the action and posology of the various drugs now considered in the desuetude tables—venesection, blistering, etc., etc.

Every practitioner is, or should be, familiar with the stages of engorgement, red and yellow hepatization and decline or recuperation. The causation of idiopathic pneumonia is due—in the writer's opinion—to some disturbance from cold, or pulmonic over-exertion in the vaso-motor ganglia guarding the respiratory tract, whereby the reflex filaments surrounding the inter-vesicular arterioles are temporarily paralyzed, producing pathological phlogosis, or a hyperemia of the parenchyma characterized by dyspnea, pain and cough, with tenacious sputa, and more or less fever, constituting the first stage, or that of *engorgement*.

The treatment should be abortive if practical, and in nine cases in every ten, *cæteris paribus*, resolution may be established before it reaches that of *red hepatization*.

For many years past my aim has been to restore the equilibrium—so to speak—of the sympathetic nerves, modify the pulmonic circulation, relieve pain and cough, and dispel fever in as short a time as possible.

If seen in the first stage, and the fever is of the *sthenic* type and the patient plethoric, I *bleed* through the alimentary canal instead of a vein in the arm—*i.e.*, I order salines in small but frequently repeated doses until the object is accomplished; at the same time aconite and belladonna (tinctures) each in drop doses should be administered (combined), every fifteen or thirty minutes until the temperature is diminished. To control pain I

find nothing better than Dovers powder in doses of five grains administered in tablet triturate form *pro re nata*.

Revulsion is practiced by means of sinapisms over the seat of pain, followed by thick, hot poultices of mush, or very thick cotton-batting. No time should be lost, however, in the administration of the drug *par excellence* in all pneumonias of an idiopathic and sthenic character.

PHOSPHORUS, in my hands has proven the *sine qua non* in the first two stages. It is also used as a tonic in the stage of resolution, combined with zinc and nuxvomica. My first case of pneumonia treated with phosphorus occurred in the winter of 1878, and as it is a fair illustration of many others, a brief account of it, as detailed before the Buffalo Medical and Surgical Association, will be submitted.

A young man, aged nineteen years, had been tramping about in the snow for three days, in search of employment. He came into my office in the evening, and standing before me with his hand upon his side, remarked, "Doctor, I guess I have brought you the worst case you ever saw." He was coughing at almost every breath, and complained of great pain.

I took in at a glance his condition, and examination revealed a semi-hepatization of the lower half of the right lung; pulse 128, temperature 104° (in axilla), and respirations 44 per minute.

I advised him to go to bed in a warm room, and apply a large mustard poultice over the posterior portion of the right side of the thorax, which, in due time was to be removed, and a hot meal poultice or a thick sheet of cotton-batting to take its place. I directed him to take one of the powders (Dovers gr. x) *pro re nata*, and one teaspoonful of solution in the bottle every hour. The solution contained tincture phosphorus, tincture aconite and tincture belladonna, each one drop to the dose—the vehicle being water. On visiting the patient at nine o'clock the following morning I found him in the dining room instead of in bed. He greeted me

with, "Well, doctor, I'm all right again. You've fixed me up on short notice." I was perfectly astonished to find him so much relieved; very little dyspnea, very slight cough and no pain or fever. But I was even more surprised to learn that he had taken but one Dovers powder, and had not applied the mustard or cotton-batting or poultice, though he had taken the solution eight times. He made a rapid recovery without having any bloody sputa, though it was exceedingly tenacious. I was so surprised at the result that I almost doubted the correctness of my diagnosis. Only a few days elapsed, however, before I had another like case, with like results; and then another and another, until now I *know* that phosphorus is as much of a specific in pneumonia when administered *early* as the bi-chloride of mercury is in certain forms of dysentery.

What is the rationale of this treatment? Doubtless the physiological action of the drug is a stimulant to the vaso-motor nervous system. The ganglionic cells take on a healthy action, and their function is restored; the circulation equalized; absorption and expectoration facilitated, and the patient is enabled to repel the depressing influence of the shock, and frequently is on the road to health before we realize the gravity of the malady. And all we have to do is to assist Nature by some simple remedies, like my old favorite: *R. Ammonii carbonas*, 3 ij; *Mist. glycyrrhizae comp.*, f 3 iv. *Mix. Sig.*: One teaspoonful every 2, 3, 4 or 6 hours, as directed. If, however, we are unsuccessful in the abortive treatment in the first stage, the second stage is much more easily controlled, and should be treated on the expectant plan, supporting, sustaining and nourishing our patient with good food, wines, tonics and the usual expectorant remedies.

The cotton-batting jacket should not be taken off until the cough ceases. The chest over the lung involved should be painted daily or every other day with the comp. tinct. iodine. There are many, many more remedies that will suggest

themselves to every practitioner, but after a practice of more than thirty-five years I am frank to submit the foregoing suggestions as reliable, and know of no better treatment.

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### PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M. D.

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#### INFLUENCE OF STARVATION UPON THE ACTION OF DRUGS.

A series of experiments has been made with a view of ascertaining the influence exerted by starvation upon the effects of drugs. These are of practical as well as theoretical importance, for starvation plays a prominent part in the clinical aspect of diseases, and some diseases produce the same pathological changes in the organism which starvation does.

Jordan (*Centralblatt für Deutsche Medicinische Wissenschaft*, March 2, 1895; and *British Medical Journal*) has made fifty experiments to learn what effect starvation has in modifying the action of digitalin. He found that the minimal dose having effect was less in starving than in control dogs; and, likewise, the minimal fatal dose was less. The vagus is less easily stimulated; blood-pressure rises very little during the first period; and slowing of the heart with succeeding rapidity are not marked.

From the condition of lessened vitality these results would, naturally, be inferred. Behind this inference is the statement of Markwald, that the medullary centres may be properly stimulated and nourished by their own inter-cellular fluid. Without doubt, the active principle, so to speak, of this fluid produced by the cells, is nuclein.

In starvation, katabolism preponderates greatly over anabolism; the inter-cellular fluid is lessened in amount; and, lacking their normal stimulus, the cells fail to respond to the drug.

#### THE PHYSIOLOGICAL ACTION OF THE EXTRACT OF THE SUPRA-RENAL CAPSULES.

The *Journal of Physiology*, for April, publishes three papers on this general subject. The first, by Dr. G. Oliver and Mr. E. A. Schäfer, was read at a recent meeting of the Physiological Society of London.

The effects of the injection of adrenal extract, even in very small quantities, resemble somewhat those of digitalis, *vis.*, arterial contraction, increased blood-pressure, central and peripheral vagus stimulation.

As adduced by the paper, chemical investigation pointed to the fact that the active agent is of the nature of the nucleo-albumins. Another argument in favor of this is that the most effective extract was obtained from the medulla of the capsules, which is rich in multi-nucleated colorless corpuscles, while the cortical substance is relatively poor in them.

A third proof of its nucleinic nature was brought forward in ascertaining that the gastric juice failed to produce upon it any effect whatever.

Lastly, Dr. Oliver said that all evidence leads them to view the functions of the supra-renal bodies—at least the medulla—as secretory, rather than destructive; and the secreted product as being, in all probability, of great physiological importance for maintaining the tonicity of the muscular tissue in general, and especially the heart and arteries.

All of these arguments point to nuclein as the active agent.

#### TETANY—ITS CAUSES—ITS TREATMENT.

Preston (*N. Y. Medical Journal*, June 8, 1895) says, the most important causes of tetany seem to be diarrhea and exhausting diseases generally; and in adults, location and exposure to cold and wet. The theory, he says, that all cases are rachitic is not borne out by observation. The causes above mentioned are just the ones that *a priori* we would expect to affect the nerve cells, perhaps using up their protoplasm.

Again, the recovery from disease may be rapid, or, on the other hand, very slow, which, according to this theory, would mean that the protoplasm of the spinal nerve-cells was only slightly or very markedly involved, these latter cases giving rise to nutritive disturbances. The treatment, he continues, may be summed up in a few words: Good hygiene, proper diet and exercise, the bromides and electricity, and perhaps local applications.

Should this theory of causation be correct, (and it seems probable), the plan of treatment is contradictory; the various methods proposed are antagonistic. We judge that electricity is advocated for its stimulant effect upon the cells. Then why use bromides? For their sedative influence? The condition present is, pathological nutritive disturbances are taking place, inasmuch as the cells are losing protoplasm, that portion of their entities without which they cannot survive. The use of the bromides would but mask the true condition. What is needed is not a sedative, but a stimulant—an agent to put a stop to the pathological irritation, and to restore the physiological process. Strychnine arsenite would meet the indications present admirably.

In this connection, it is well to mention the experiments undertaken by C. F. Hodge (*Journal of Morphology*). He showed that electrical stimulation of nerve cells caused extrusion of granules of protoplasm from the cells themselves; and in several instances, granules of the nucleoli were extruded into the nuclei. These changes show an abnormal amount of irritation and would seem to correspond with those taking place in tetany.

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INFLUENZA AND LIFE INSURANCE.—At a meeting of one of the large English insurance companies it was shown (*Journal A. M. A.*) that more than six hundred thousand dollars had been paid out for deaths due to influenza. The report of the Secretary showed that this disease has cost the insurance companies more in the last two years than in the previous forty-three years.

## PATHOLOGY AND BACTERIOLOGY.

By CHARLES P. KNAPP, M.S., M.D.

## PATHOLOGY, BACTERIOLOGY AND CLINICAL MEDICINE.

Osler (address before Assc. American Physicians, May 30, 1895) said, There is no need to insist upon the necessity of accurate and prolonged training, in the development of workers in these branches; but I do not think the profession of this country yet understand the art of training special clinical physicians. We have taken it too much for granted that such develop readily in the routine of family practice. True, along this path, some of the most noted men in our ranks have travelled; but the time has come when able young men should be encouraged to devote themselves to internal medicine as a specialty. Such men will pass to the wards, through the laboratories, thoroughly equipped to study the many problems of clinical medicine. The opportunity for such a career is in every city with a hospital of fifty beds.

## PERMANENT SPECIMENS, FROM FROZEN SECTIONS, BY USE OF FORMALIN.

(Cullen, *J. H. Hospital*, April, 1895.)

Method I.—1. Frozen Section in 5% aq.

sol. Formalin, 3–5 minutes.

2. 5% alcohol, 3 min.

3. Absolute alcohol, 1 min.

4. Wash in water.

5. Strain hematoxylin, 2 min.

6. Decolorize in acid alcohol.

7. Rinse in water.

8. Strain with eosin.

9. Transfer to 95% alcohol.

10. Pass through absolute alcohol, creosote or oil of cloves, and mount in Canada balsam.

Method II.—1. Tissue 1x5x2 cm. in 10% aq. sol. Formalin, 2 hours.

2. Frozen section made—and through the above method I from No 3.

The above is a very rapid and satisfac-

tory method, depending on rapid hardening qualities of formalin. Method I, report can be made in 15 minutes, and by method II in 2 hours 15 minutes, as satisfactorily as with alcohol or Mueller's fluid after two weeks.

## STAINING AND MOUNTING TUBE-CASTS AND OTHER ORGANIC URINARY DEPOSITS.

(Brommell, *Brit. Med. Jour.* and *N. A. Pract.*, June, 1895.)

1. Urine. Aq. Sol. Ac. Boric. ãã—put aside till deposit settles (or deposited by centrifuge.—C. P. K.)

2. Urinary deposit. Picro-carmin Sol. ãã 3 ss., gently agitated. Set aside 24 hours.

3. Drawn off with fine-mouthed pipette, and examine, when tube-casts can be easily detached if present.

4. Permanent specimens can be mounted in Farrant Sol. Deposit drawn off as above, transferred to small tube of Farrant, allowed to settle, drawn off and transferred to clean Farrant.

## ENDOGENOUS FORMATION OF THE MALARIAL PARASITE.

(Leonard, *International Medical Mag.*, May, 1895.)

The vital cycle has been studied, as seen in certain forms of malarial fever, by various authors. Golzi describes it:—An ameboid parasite, from one-fourth to one-fifth the size of the red blood-corpuscle, marked activity in pseudopodia, and absence of pigment. Increases till it occupies one-half to two-thirds of an entire red blood-corpuscle and contains melanin (Celli) in small rods and granules, derived from pigment of its host. Red blood-corpuscle is destroyed, as parasite increases until entirely replaced by the organism. During this time segmentation has commenced, and after destruction of the red blood-corpuscle, the parasite breaks up into the first or ameboid forms, which attack new red corpuscles, while the pigment gathered by parent protozoa is liberated. Other observers have differently divided the life cycle, and while it

has never been absolutely demonstrated—results of competent observers in different parts of the world prove almost beyond a doubt that the malarial parasite is a hematozoön, poly-morphic in character, possessing the property of reproduction and complete development within the human body, and of passing through a definite life cycle again and again. This is even demonstrated by the author's method of making a consecutive series of instantaneous photomicrographs of the same microscopic field, taken at definite intervals, and the comparative study of the series.

**PROOFS FOR ASCERTAINING THAT THE HEMATOZOA ARE THE PATHOGENIC CAUSE OF THE DISEASE.**

(Hamilton, *Ontario Med. Jour.*, May, 1895.)

1. The hematozoa have been found in malarial patients of all countries with the same characteristics, and there is a remarkable agreement between the already numerous descriptions of them.

2. These hematozoa have never been found in non-palustral blood.

3. The development of the hematozoa is intimately connected with the appearance of the melanemia which is the characteristic lesion found.

4. Quinine causes the hematozoa and the fever to disappear at the same time.

5. The disease has been communicated to a non-palustral patient, taken at a time when the parasites were present. The period of incubation is from two to fourteen days or more. The organism may be found in the blood of the patient experimented on.

**WATER BORNE MALARIA (*Ibid*).**

1. In malarial districts it has been found that those drinking water from one source contracted malaria, and that those drinking water from an entirely different source escaped.

2. Palustral fevers have disappeared from malarial districts, where a supply of good drinking water has been provided instead of stagnant water once used.

3. In some districts otherwise healthy people may contract fever when water comes from a malarial locality, and the persons most exposed to infection in such locations are those who drink the most water.

4. Travellers passing through malarial districts often escape by drinking only water that has been boiled, while those who did not take this precaution suffered severely.

**TOXINS AND ANTITOXINS.**

(E. Kline, M.D., *London Lancet*).

Proposition I.—Pathogenic bacteria produce by their growth and multiplication specific poisonous substances which we call *toxins*.

Proposition II.—Toxins, as far as they have been investigated, are definite chemical bodies. And next as to antitoxins. These antitoxins must be very complex bodies, because they are capable, not only of inhibiting the life processes of bacteria, but also of neutralizing the toxins previously elaborated, and that have been dissociated from the bacteria which produced them, and these two functions are, be it observed, utterly different.

How are these complex antitoxin bodies, thus possessing dual functions, produced? There is the theory that these antitoxins are produced by the tissues themselves, as a sort of defense against the toxins which have gained access to them, the toxins being thought of as stimulating the tissues to production of certain defensive substances, which are therefore called antitoxins, and are considered to comport themselves just like ferments. This is the theory held by the French school.

"There is no reason why the toxins themselves should not become converted into antitoxins," says the French school.

I suspect that antitoxic serum obtains from dead bacterial protoplasm, that it has associated its power of inhibiting the processes of living bacteria, and that its power of neutralizing the already formed metabolic products of bacteria is due to tissue-change resulting from contact of the tissues themselves with metabolic poisons.

## COMPOSITION OF HUMAN MILK.

(Johannesen, *Norsk mag. f. Læger*, p. 1, 1895, *Univ. med. Jour.*, May, 1895.) The specimens of milk were taken from the breasts of twenty-five women from 20 to 46 years of age, from the first to the thirteenth month after delivery, either before or after the child has nursed, and under given dietetic conditions, the food being weighed and measured with exactitude. The specific gravity of the milk was in inverse proportion to the quantity of fatty matter; analysis made at different hours of the same day often showed a notable difference, especially in the fatty constituents, which were much greater immediately after the child has nursed, while quantity of albumen and sugar remained about the same. Albumen was more abundant in early months of lactation. Abundant diet increased albumen and fatty matters, amylaceous food made it poor in albumen and sugar, but rich in fatty matters.

## SCARLET FEVER AND STREPTOCOCCUS INFECTION.

(Rosa Engelmann, *Jour. Amer. Med. Assoc.*, March 9, 1895). To sum up:

1. A specific scarlet fever germ or toxin is not yet demonstrated.
2. The disease is associated with a streptococcus infection.
3. A streptococcus admitted to be the cause of surgical scarlet fever and puerperal fever.
4. A streptococcus admitted to be the cause of erysipelas.
5. The frequent association of the latter with puerperal fever, and it in turn with surgical scarlatina.
6. The relation of idiopathic scarlatina to surgical scarlatina and puerperal fever acknowledged.
7. The identity of the streptococcus pyogenes and erysipelatis advocated.
8. Clinical records showing the association of suppuration, erysipelas and scarlatina in one and the same subjects, suggestive of the parallelism of these three infections and the probable biologic identity of these several streptococci.

9. Clinical differences and varying susceptibility to the one or the other due to heredity, age, anatomico-physiologic conditions, congenital disease, environment, life history of the invading host and its avenues of entry.

10. Disappearance of idiopathic erysipelas from the nomenclature. Analogously, idiopathic scarlatina may meet a like fate.

11. Natural immunity due to heredity and healthy developed structure.

12. Acquired immunity from antitoxins of the disease or thyroid blood serum therapy that will revolutionize the treatment of this dread disease.

13. Inunctions disapproved of. Antiseptic baths better, meeting antibacterial and physiologic indications.

## EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH, ETC.

(Turck, *Jour. Am. Med. Assoc.*, 1895). After an exhaustive study, chemically, microscopically and bacteriologically, concludes as follows:

1. Carcinoma of the stomach early creates a soil for the rapid development of micro-organisms.
2. The lactic acid forming germs grow more readily in carcinoma of the stomach than in other diseases of that organ.
3. Lactic acid germs found colonizing in the stomach are of great diagnostic value in carcinoma.
4. The absence of germs does not exclude carcinoma.
5. The determination of lactic acid fermentation by Boas' method, as modified by Wesener is of diagnostic value.

## BLOOD ALTERATIONS OF ETHER ANESTHESIA.

(J. C. Da Costa, *Med. News*, March 2, 1895). From a number of observations gives the following conclusions:

1. Etherization produces a marked diminution in the hemoglobin of the blood.
2. The red corpuscles and hemoglobin are especially affected in blood previously diseased—as anemia.
3. Irregular reports are due to faulty observation, to the presence of altered



hemoglobin in the blood, to the faulty observation as to color of a Fleischl instrument, or to taking the blood before anesthesia is completed.

4. The white corpuscles show irregular changes which are not characteristic, and exhibit variations not more pronounced than would be found in the same number of samples of normal blood on different examinations.

5. Age does not apparently influence the results.

6. Ether pneumonia may possibly be due, in some instances at least, to the action of intense cold upon the lungs, produced by the action of ether vapor.

7. Edema of the lungs may arise from contraction of the pulmonary capillaries, thus producing a loss of *vis a tergo* and damming up of blood in the veins. The same condition may produce sudden paralysis of the heart.

8. The often quoted observation as to the effect upon the hemoglobin of shock and hemorrhage requires enlarged repetitions upon human beings before the statement can be unreservedly accepted that hemorrhage causes a great fall in the amount of hemoglobin, but that shock does not affect it.

9. The chilling of the blood stream may be responsible for the nephritis that occasionally follows etherization.

10. Prolonged anesthesia profoundly deteriorates the blood and strongly militates against recovery: hence rapidity of operation is desirable.

#### IMMUNITY FROM SCARLATINA PRODUCED BY NUCLEIN (Thyroid).

The highly contagious nature, and rapid spread of scarlatina among those exposed, is a well known clinical fact. The history of this disease in the following families, and the immunity procured by Nuclein (Thyroid) is, I think worthy of record.

S. T's. family.—Child 2 years old, female, on February 20, 1895, presented a severe and typical case of scarlatina, from which it recovered after a serious illness of four weeks. The other members of the

family, four in number, aged 3, 4, 6 and 8 years, lived with the sick child and were thoroughly exposed, no precaution being taken by the family; nor could it be carried out by the physician. Five minims nuclein solution (Aulde's formula) were given to immunize, four times a day. No other case occurred in this family. The 3 year old child had a slight tonsillitis.

W. McD's. family.—Child 10 years old, female, June 4, 1895. Severe and typical case scarlatina. Other children, 8, 6, 4 years and 7 months. No precautions were taken to protect these. Five minims nuclein solution as above, were given four times a day to immunize. No other cases occurred in this family. It has always been my experience to see all the children of a family, when scarlatina broke out, affected to a greater or less degree, even when all precautions were taken. But the favorable conditions for the spread of the disease in these families, the serious and protracted case in each, and the absence of all measures save the use of the nuclein, would point very strongly to its immunizing power. The nuclein was used for fourteen days.

Wyoming, Pa.

SALIPYRINE IN MENORRHAGIA AND METRORRHAGIA.—E. G. Orthmann (*Berliner klin. Wochenschrift*) has tested the value of salipyrine in the various forms of uterine hemorrhage by observations on thirty-two patients in Dr. Martin's clinic in Berlin. Fourteen of these cases were purely functional. In three the metrorrhagia was associated with salpingitis and oöphoritis, while the remaining fifteen were classed under the head of endometritis hemorrhagica. Of the thirty-two cases twenty were more or less beneficially influenced, the most marked success being obtained in simple menorrhagia subsequent to parturition or abortion. In no instance were any unpleasant by-effects noticed. The salipyrine was given in the form of lozenges containing fifteen grains each. Of these the patients took three daily, commencing a day or two before the hemorrhage was expected and continuing throughout the whole period. Dr. Orthmann considers that the results obtained warrant his recommending the trial of this drug in suitable cases of uterine hemorrhage.—*International Med. Magazine*.

## DISEASES OF THE RESPIRATORY APPARATUS—THERAPEUTIC CONSIDERATIONS.

By JOHN E. BACON, M. D.

### MEMBRANOUS RHINITIS.

Ravenel, of Philadelphia (*Medical News*, May 18, 1895), contributes a valuable paper concerning the etiology of membranous rhinitis, being a review of the subject and the results of the study of ten cases, including bacteriological examination, during the past year.

It is an important fact that the Klebs-Loeffler bacillus was demonstrated in all but one of the cases examined, and in that case the diagnosis was questionable; cultures of the bacilli so obtained were all fatal to guinea-pigs after varying periods of time, and the post-mortem lesions in the animals were those typical of diphtheria.

The histories of four cases from the clinic of Dr. Freeman show strong evidence of the infection of the latter three cases from the first one, and the fact that these three cases all developed faucial diphtheria subsequent to the appearance of membranes in the nose is significant. Out of a total of forty-six cases in which bacteriological examination was made, thirty-seven contained the Klebs-Loeffler bacillus. The author concludes that all cases of this disease should be regarded as suspicious and isolated until examination of the membranes shows the true nature of the infection.

The course of the disease is usually benign, there being but rarely constitutional symptoms to attract attention. When the cause of the infection is considered, this seems unaccountable, and can only be explained by the theory of Brieger and Frankel (*Berliner Klinische Wochenschrift*, Nov. 17, 1890), namely, that under certain conditions the Klebs-Loeffler bacillus does not produce the poison which gives rise to the systemic intoxication of diphtheria, but simply grows and multiplies, and consequently local lesions are all that are to

be found. The same observers state (*L'Union Médical*, March 14, 1891), that by a series of cultures of this organism, they were able to detect changes in the character of its secretion whereby it became harmless. They also have described an organism presenting all the morphological characteristics of that of Klebs, and apparently identical with it, which they discovered in the throats of healthy children and in the throats of those long recovered from diphtheria. This is probably an attenuated form and capable under proper conditions of becoming virulent. Very likely foul air and other insanitary conditions are favorable if not instrumental in producing the change from mild to virulent forms.

In this connection it is interesting to remember that the above facts concerning the varying pathogenic activity of the Klebs-Loeffler bacillus may have a bearing on the old question of the diphtheritic origin of membranous croup. Examination of the membranes shows that they are identical in structure with those of diphtheria, being composed of fibrin closely interlaced, containing leucocytes and epithelial and connective tissue elements. It is essentially the product of coagulation necrosis of the epithelial and sub-epithelial tissues; similar membranes have been produced by the impact of the galvanocautery, of strong ammonia and by the inhalation of irritating vapors and gases, upon nasal, laryngeal, and tracheal mucous membranes.

The symptoms are more or less excoriation of the skin surfaces around the nostrils, producing a "sore nose," for relief of which the little patient is brought; a sero-purulent discharge, marked obstruction of the nares, and on examination the membrane will be seen in the anterior or posterior nares, or both. It may be detached in pieces, or shreds may be blown out; this will establish a provisional diagnosis, after which the bacteriological examination should always be made where possible.

*Treatment* must be very thoroughly and persistently carried out, and consists mainly in local measures, as there is little or no systemic infection in the majority of cases. The fauces and post-nasal space must be faithfully watched for signs of extension, and in cases where it occurs the patient must be isolated, and the case regarded and treated as one of diphtheria. Daily irrigations of the nares, by means of the anterior soft rubber syringe, with warm Dobell's solution, or with warm Seiler's solution, followed by insufflations, with a powder-blower, or dithymol diiodide (aristol), will be found a very efficient treatment, being simply antiseptic and calculated to inhibit the growth and destroy the causative factor, whether it be the Klebs-Loeffler bacillus or other pathogenic micro-organism.

#### EXOPHTHALMIC GOITRE ASSOCIATED WITH NASAL POLYPI.

Scanes Spicer, of London, (*Journal of Laryngology and Rhinology*, Feb., 1895), reports a total of five cases of exophthalmic goitre associated with nasal polypi, in which removal of the polypi and nasal treatment was followed by rapid improvement and cure of the disease. This is reliable evidence as to the possibility of the reflex origin of Grave's disease, and emphasizes the importance of a thorough examination of all possible sources of reflex irritation when such cases are encountered.

#### STRYCHNINE HYPODERMATICALLY IN FIBRINOUS PNEUMONIA.

Dr. Percy Kidd, of London, (*Sem. Med.*, No. XV, 1895), considers the hypodermatic injections of the salts of strychnine invaluable in fibrinous pneumonia with failing heart. They are given whenever the pulse becomes small and frequent, with dyspnea, in doses of from  $\frac{1}{100}$  to  $\frac{1}{50}$  grain, repeated every two hours for three or four doses, and then at longer intervals. The action of the strychnine is manifested in from ten to fifteen minutes by increased tension and fulness of the pulse, and by

an improved condition of the respiration. In addition to its being as effective, the strychnine seems to have a more calming effect over the delirium than alcoholic stimulants.

#### TARTAR EMETIC TO ABORT PNEUMONIA.

Dr. A. B. Cooke, of Bowling Green, Ky. (*Amer. Med. and Surg. Bulletin*, June 1, 1895), in a paper on the abortive treatment of pneumonia, after a somewhat severe arraignment of the profession in regard to the present treatment of this disease, declares emphatically for the use of tartar emetic in doses sufficiently large to produce and maintain nausea,  $\frac{1}{10}$  to  $\frac{1}{5}$  grain, supporting his belief by the report of two sthenic cases which recovered rapidly under this treatment. It occurs to the writer, that Dr. Cooke is rather too enthusiastic in heralding the merits of his retrograde discovery, as many an able physician could hand in reports of long series of cases treated with veratrum or aconite, some of which would read quite as smoothly and be quite as convincing as those reported in the paper referred to.

Tartar emetic *will* reduce the force and frequency of the pulse by direct action on the heart. It is a muscle poison, and the heart will soon become irregular and irritable under its continued use. It is also a powerful irritant to mucous membranes, as evidenced by vomiting and profuse serous discharges from the bowels; hence we add a gastritis and enteritis, however mild they may be, to the already existing pulmonary inflammation. Tartar emetic is a paralyzant of the sensory, and to a less degree of the motor fibres of cord and large nerve trunks, thus inhibiting the mechanism of the vasomotor system which is favorable to venous stagnation; and finally, its action on the respiratory centre is that of an unequal paralyzant, affecting most the afferent, and less so the efferent fibres, with the result of producing irregular respiration, forced and unnatural.

Altogether the physiological action of the drug contra-indicates its employment in this disease. There is no indication in

pneumonia that is not met more rationally by *veratrum viride*, and in selected cases, venesection. The indications are, to modify the circulation, encourage nutrition, and supply the leucocytes with proper food, that they may be better able to cope with and overcome the irritant, whatever its nature, rather than disorder nutrition and lower vitality by the exhibition of irritant drugs.

#### A COLONY FOR CONSUMPTIVES.

Dr. Benjamin Long, of Buffalo, N. Y., in a paper read before the Erie County Medical Society, June 11, 1895, suggests the propriety of the establishment of a colony for consumptives in the Rio Grande country of New Mexico; the idea being to provide land for farming, and to establish manufacturing enterprises, so that those who otherwise would not be able to avail themselves of the benefits of a change of climate, could go there and be employed in a self-sustaining occupation. The idea is a good one, and is to be commended to the notice of the societies for the prevention of consumption, now forming in the large cities, as one more likely to be of benefit to mankind than the building of hospitals for consumptives in the eastern cities, where the patients are, at best, but subjects for the study of the disease and can hardly hope for more than temporary improvement.

#### FALSE CROUP.

It may be of interest to some, to point out a factor in the etiology of this affection that is not generally known, as it has been developed by the specialist; it is, however, conclusively proved. False croup, spasmodic croup, or spasmodic laryngitis is a respiratory spasm or convulsion which depends on a peripheral irritation of the pneumogastric nerve; perhaps from its gastric or pulmonary branches, more frequently from its laryngeal, and most frequently from its branch which, with anastomotic twigs from the superior laryngeal nerve, supplies the naso-pharynx; thus adenoids or any naso-pharyn-

geal disease, when irritated by sudden climatic changes or other cause, are quite capable of inducing an attack.

Mr. Lennox Browne, of London (*Diseases of the Throat*), considers adenoids to be the most frequent cause of this affection, and has obtained satisfactory results from treatment directed to the vault of the pharynx.

Dr. Joseph H. White, of Richmond, Va. (*Burnett's System of Ear, Nose and Throat*), states that it is the most frequent cause of croup, and that in every case of laryngeal spasm which he has ever seen, adenoids or some obstructive disease of the nose was found. He quotes Coupard, who states that out of fifty-six cases of adenoids treated by him forty-five had croup.

The writer has seen a case of persistent hoarseness, occurring in a girl, aged eight, who was subject to severe attacks of croup on the slightest exposure, in which adenoids were found. Total extirpation of the growth resulted in complete disappearance of the hoarseness and cure of the croup, there being no return to this time, now more than a year.

In the light of these facts every child subject to attacks of croup should be examined for adenoids, which, if found, should be removed, and nasal treatment by a cleansing alkaline spray be instituted and continued for some time.

It is important to test the hearing of each patient with adenoids, for serious mischief in the middle ear is one of the most frequent as well as the most irreparable results of this condition.

#### PECULIAR MOTILITY OF THE TONGUE.

Mr. T., aged 60 years, consulted the writer for "polypuses" in his nose which, according to his statement, were the source of a constant dropping into the throat, and of some nasal discharge. Examination revealed a well marked hypertrophic catarrhal inflammation of the naso-pharynx and posterior nares, there being quite a degree of hypertrophy of the posterior ends of the inferior turbinated bodies,

and a like condition of the pharyngeal tonsil. This condition, it was ascertained by sharp cross-questioning, had been caused by the patient's habit of introducing his tongue back of the soft palate and so into the naso-pharyngeal space. The sensation caused by the contact of the tongue with the hypertrophied turbinals had made him believe he had polypi, for relief of which he had come.

*Treatment* consisted of repeated touches of the hypertrophies with the galvanocautery and mopping the vault with the *glycerite of iodine*\* solution twice weekly, the patient being warned not to continue his glosso-gymnastics, and this resulted in complete relief of the condition in about three months.

#### FAT IN PULMONARY CONSUMPTION.

Dr. Thos. J. Mays, of Philadelphia (*Phila. Polyclinic*, May 25, 1895), in a paper on the above subject, has considered the subject of the physiology of fat production and fat producing foods in the consumptive in a somewhat new light.

"What is the source of fat in the animal economy? Is it derived from the outside as fat, or is it manufactured by the body from other food? These are questions of great physiological and clinical significance in relation to the disease under consideration. There are two great classes of foods: the proteids, or albuminoids, and the fatty and starchy foods; and there was a time when the animal body was likened to a steam engine, inasmuch as it was believed that the proteids furnished the material for the structure of the machine, while the fats and starches were oxidized and gave the necessary force to keep the machine in motion. According to this view the fat of the body is derived from the fatty and starchy foods, and is used at once, or stored up for future purposes. This view is not strictly true, as will appear further on.

"The fat of the body is contained in cells which are composed of protoplasm and possess nuclei. The cells abound in the interstices of loose connective tissue,

and are found under the skin, especially in the soles of the feet, the palms of the hands, buttocks, female mammary gland, around the synovial capsules of the joints, in the orbits, in the medullary canals of bones, in the surroundings of the kidneys and the omentum, and on the surface of the heart.

"When an animal fattens it appears that oil globules are formed within the fat-cells. These globules increase in number while the protoplasm of the cell diminishes. These globules are not deposited in the cells in a mere mechanical manner, but they are formed by the cell itself and at the expense of its own protoplasm, which becomes very much attenuated. It seems, therefore, that the fat of the body is as much a secretion of the fat-cells as pepsin is a secretion of the peptic glands, or as the oily matter of the skin is the secretion of the sebaceous glands, or as the fat of milk is the product of the cells of the mammary gland.

"From the fact that the protoplasm of the fat-cells undergoes metamorphosis when the oil globules form, it seems quite obvious that other than fatty food is used by the body in the manufacture of fat, and that in all probability proteid or albuminous food is used for this purpose. It was shown by Liebig long ago, that fatty, starchy, and saccharine foods do not form the exclusive supply of fat in the body; for the butter in the milk of a cow far exceeds the scanty supply of fat in her food, and the wax which is produced by bees is out of all proportion to the amount of sugar which they consume in their food. The feeding experiments of Lawes and Gilbert also demonstrate, 'that for every 100 parts of fat in the food of fattened pigs, 472 parts were stored up as fat,' showing, therefore, that fatty foods only supply about one-fourth of the fat which is contained in the body.

"That proteids form an important source of fat in the body is evidenced by the following facts: Microscopic observation shows that the fat of milk is formed by the epithelial cells of the mammary gland through the probable metabolism of protoplasm. Fat in milk is largely increased by albuminous, and diminished by fatty, foods. When cheese "ripens" its proteids are converted into fat. Milk-sugar is maintained in abundance in the milk of carnivora even when fed on an exclusive meat diet (Foster). Fatty degeneration, as is often witnessed in the heart and in

\* R Iodine crystals, ..... gr. v;  
Potassium iodide, ..... gr. vi;  
Glycerin, ..... fl. oz. i.  
M. et solve.

other important organs, is further evidence that proteid substances are converted into fat.

"By this I do not wish to convey the idea that albuminous foods supply the greatest part of the fat to the body; nay, we know that this is done by the carbohydrates; but I desire to lay special emphasis on the fact that fats and oils do not play the important part which they are popularly supposed to do in the nutrition of the animal body, and on the further fact that proteids are of greater value as fat producers in pulmonary consumption than they are generally believed to be. In fact, evidence is not wanting to show, as has already been hinted, that both fats and carbo-hydrates diminish the metabolism of the body, while a meat diet enhances the same, increases the oxidizing activity of the body, multiplies the number of red blood-corpuscles, and leads to a rapid consumption of fatty and carbo-hydrate food. A great deal of harm has followed the doctrine that the fat of the body only comes from the fat of the food, and that therefore the only way to fatten a consumptive is to ply him with fats and oils of various description. Every experienced physician knows that oil and fats produce dyspepsia in many such patients, and do no good in some with whose digestion they seem to agree, while there are a few who thrive under their use, but whose fat does not seem to have any staying qualities. It seems to me that oily and fatty foods only confer a real benefit on a minority of consumptive sufferers, and that much greater service is rendered to the nutrition of such patients by the administration of albuminous foods, the important ones among which are freshly expressed beef juice, beef, mutton, lamb, milk, eggs, oysters, clams, liquid peptonoids, beef powder, meat juice, beef peptones, etc.

"An important question comes up here in regard to the influence which rest and exercise have on the fattening process of the human body. Is physical activity more conducive to fat-building than rest, or is it not? This may be said to depend altogether on circumstances. There is no doubt that in health exercise gives both fat and strength, but it is quite different with the invalid. The fat which is stored up in health represents so much surplus capital which is laid up for a rainy day; but the consumptive has no surplus capital and lives, as it were, from hand to mouth.

All his energies are devoted to the maintenance of those bodily functions which are immediately necessary to life, such as circulation, respiration, digestion, innervation, etc., and very frequently these are carried on imperfectly. To him, therefore, exercise is meaningless, for he has no capital to exercise until he gets stronger and lays up some. Hence he must practice economy. He must restrict his outgo and increase his income. This he can only do by resting.

"That rest promotes the collection of fat is shown in the fattening of animals. Swine and cattle, which are prepared for the butcher's knife, are not allowed to run loose, but are closely confined; and the geese of Strassburg, which fatten to enormous proportions in a few weeks, are shut up in tight boxes with just sufficient room to project their necks. I have, again and again, observed that with no other change in the treatment except the substitution of rest for exercise, consumptives show a marked and distinctive improvement and gain in flesh."

Dr. Mays also points out that the building of fat and nutrition in general is closely associated with a normal nervous system, and that the depression commonly seen in phthisis is a strong bar to proper nutrition. He asserts that the beneficial action of strychnine in this disease is due to its action on the nervous system bringing the trophic centres or fibres to a more normal control of metabolism.

Dr. Mays uses strychnine in gradually increasing doses, beginning with grain  $\frac{1}{32}$ , three times a day after food, and increasing gradually to the point of physiological tolerance; he has given grain  $\frac{1}{8}$ , three times a day for two months with great benefit, and considers it, combined with fat-making diet and rest, the best treatment we have in this climate.

Notwithstanding the plausible arguments advanced in favor of the use of strychnine and the advantages of rest in the treatment of pulmonary consumption, the premises on which this superstructure is based are faulty, while the illustrations, if closely examined, are sufficient to cause serious doubts as to their applicability. It is admitted that the de-

posit of fat in the body results in the lessening of muscular tissue, and, therefore, the benefits from its administration in phthisis are, for all practical purposes, imaginary, just as has been demonstrated in the foregoing paper. Now, precisely the same condition of affairs in respect to metabolism (tissue-change), takes place when patients are well fed and rest insisted upon. Patients in the early stage of pulmonary consumption, if "cooped up" and well nourished—with proper hygienic surroundings—will always show decided improvement, but as soon as their environments are changed and they undertake even moderate exercise, they begin to lose flesh, and, moreover, their strength is not what it should be, judging from their physical appearance. To use Dr. Mays' own words, they lack "staying qualities."

What, then, are the manifest advantages of the addition of strychnine to the "rest" treatment? Evidently, its influence upon muscular structures, extending even to the point of increasing cellular activity, just as moderate exercise stimulates tissue-change and promotes the elimination of waste products. With this object in view, massage is frequently recommended, but massage does not, as does strychnine, extend to all the muscular structures, and can never be expected to modify, only indirectly, the more deep-seated tissues. And for the same reason, strychnine is preferable to passive exercise of any description, simply because it affects all muscle tissue—favorably if given in small doses repeated at short intervals, unfavorably if given in massive doses. Overstimulation and subsequent exhaustion must be carefully avoided.

Dr. Mays attempts to show that the nervous system is at fault in this morbid complex, and claims that the strychnine tends to overcome and counteract the disordered condition of the nervous system, whereas the contrary is true. The nervous disorder is an *effect* rather than a *cause*, and the true physiological effect of strychnine

is that of a paralyzer. Indeed, it is this paralyzant action which makes it available as a therapeutic agent, since its influence upon the nervous system, or nerve-supply, permits muscular tissue to contract. The effect of strychnine is, therefore, the identical effect which would be produced by exercise, but without the fatigue incident to muscular exertion. Strychnine "takes up the slack" in the muscular structures and thereby prevents venous stasis, and as a consequence, there is not witnessed the profound physical depression which results from the indiscriminate use of fats and oils without proper attention to exercise. This is confirmed by the effect produced upon patients who take strychnine in medicinal doses for continued periods; the flesh becomes firm, mental hebetude disappears, digestion is improved, while the step becomes elastic and strong. But all these results can be better secured by the combination of arsenic with strychnine, in the form of the arsenite, small doses of which will suffice to show its marked superiority over the salts of strychnine usually employed.

149 Franklin St., Buffalo, N. Y.

### ***POISONING BY BICHLORIDE ANTI-SEPTIC TABLET.\****

By THOS. P. SATTERWHITE, M.D.

A few days since I delivered a lady, primipara, married twelve years. It was a forceps delivery, and there was quite a laceration of the perineum. I explained the state of affairs to the patient and her husband, and told them I would go and get my instruments and put two or three stitches in the perineum. In the meantime they were to prepare some hot water and obtain a fountain syringe; and I wrote a prescription for some bichloride tablets.

When I returned in the course of an hour, found the lady sitting up in bed,

\* Reported to the Louisville Clinical Society and contributed exclusively to THE AMERICAN THERAPIST.

the husband on one side, her sister on the other, the nurse holding a basin and the patient vomiting incessantly. I thought it was simply the result of chloroform given during the labor, but when the husband told me that he had administered one of the bichloride tablets, I was terribly shocked, and my exclamation indicated as much to the lady. I immediately ordered the whites of eggs, and with the hearty co-operation of the patient herself, relief was finally obtained. I gave her three goblets of the whites of eggs, one after another, which were retained only a few seconds; also gave flour and water mixed to about the consistency of milk, washing out the stomach by this means. She still vomited freely, retaining the eggs and flour and water, as I have said, but a few seconds. I then dissolved ten grains of tannin in albumen water so it could be taken more easily, and that settled her stomach most marvelously; she stopped vomiting after taking the first gobletful of this mixture. I repeated it every two hours until she had taken thirty grains of tannin. In the meantime no bad symptoms developed.

I telephoned for Dr. J. W. Irwin to see the case in consultation; not being able to get him, I called Dr. Carl Weidner, who suggested that we administer castor oil, with the idea that some of the bichloride might have gotten into the bowel, and should be carried off as speedily as possible. We therefore gave her a half tea-cupful of castor oil. She soon had a number of large fecal evacuations, and went to stool frequently during the night. The next morning I gave her a mixture of subnitrate of bismuth and morphine to quiet the bowels; after this she felt very comfortable.

As soon as I reached the house I asked the husband how long it had been since he gave her the tablet, and he said "fifteen or twenty minutes." I think her life was saved by the excessive amount of bichloride, and that she immediately commenced vomiting.

I examined the contents of the basin, but could find no part of the tablet, so that it had evidently dissolved in that short space of time. She made a very fortunate recovery, and I have no doubt the douching of the stomach with albumen and flour and water aided very materially in restoring her to the normal condition. At the same time I feel satisfied that the speedy vomiting saved her life.

### *ALOPECIA AREATA.\**

By I. N. BLOOM, A.B., M.D.,  
Dermatologist to the Louisville City Hospital, etc., etc.  
Louisville, Ky.

Ten days ago I saw a case which in my experience is rather interesting; I only saw the patient once. A little girl, five years of age, has a well marked alopecia areata. There are several patches on the child's head, varying in size from half as large as the palm of my hand down to the size of a penny. The case is interesting from this fact: The child is apparently in perfect health; three or four weeks ago she fell, striking the back of her head; she was unconscious for a few minutes only; recovering consciousness, for several hours afterward she vomited incessantly; the next day a small bald spot was observed and a tendency of the hair to fall out. Except the vomiting there were no cerebral symptoms, the vomiting recurred after four or five days. The point of interest is the possible relation between the blow and the alopecia, because it is still a matter of doubt whether alopecia is a disease of nervous or microbic origin. I should think that a collection of such cases as the one I have just reported would rather prove that it is of nervous origin and not microbic.

I have not seen the child since. The case was sent to me with the request that I make an examination and give an opi-

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nion; I wrote the doctor setting forth the points in the case and stating that I would like to hear further about it.

*Treatment*.—I scarcely know what to say as far as the treatment in this special case is concerned. We certainly could not expect to get a great amount of benefit locally from a disease which is of central origin. Of course I refer only to this individual case. My prognosis is good. The larger percentage of these cases recover. I believe I have only seen one that did not. I remember that Dr. W. O. Roberts reported a case to this society some time ago which did not recover; in other words, no benefit was noted from any method of treatment employed during many years. In these cases I generally adopt local stimulation; but I often vary the means sometimes by blistering by means of salve, sometimes by inunctions of tincture of iodine; I rely mostly, however, upon the concentrated carbolic acid application once in ten to fourteen days, varying that according to the desquamation which follows. This drug has proven to be the most serviceable in my experience. I have never tried electricity, because reports in this connection have been discouraging. I have tried chrysarobin, but this is not advisable because it irritates the surrounding parts, and dyes the hair, and patients seriously object to it. Where there are distinct indications for internal treatment, I give the proper medicines. If the scrofulous diathesis is evident, I give cod liver oil, iron, and other tonics. I endeavor to correct the digestive functions, regulate the bowels, etc.; the indications for internal treatment are simply general; there is no specific action that can be claimed for any drug administered internally, and anything in the way of tonics is likely to cause improvement. It has been shown by some writers that alopecia exists sometimes for years, and then without treatment the hair returns completely.

In one of the latest works upon this subject, I think in Morrow's system, a

case is mentioned where the hair had been absent for eight years, when it suddenly grew again and in a short time was completely restored. There are adherents to the microbic theory, and many who believe that the disease is of nervous origin, inasmuch as it has been known to follow the course of special nerves. Which of the two theories is correct, I am unable to state. This case is of considerable importance as pointing to the nervous origin.

#### DISCUSSION.

Dr. J. W. Irwin:—The case reported by Dr. Bloom is of much more importance than he would lead us to believe. There is certainly nothing more deforming than missing patches of hair. It is even worse than general baldness. I have seen a number of such cases, and, like Dr. Bloom, have not seen any that did not get well. In some of them, however, the trouble had existed for over a year. Recently a lady having marked alopecia came under my observation. She had been treated by a skin specialist in New York for a year, who had applied a solution of the bichloride of mercury to the bald patches, and had given her Donovan's solution internally. She had taken this for some time and her breath had become more or less fetid; there had been pytalism, etc., but the hair had not returned. The patient remained under my care two or three weeks, then went to Chicago, and soon after returned. She had several bald patches along the top and back of her head, some as large as a silver dollar and some larger. A few hairs were standing out on the patches, looking coarse, and making a very unsightly appearance. I made an application of a 25 per cent. solution of carbolic acid with 75 per cent. of the tincture of iodine, once every fourth day. When she returned from the northwest I found an even growth of hair over the site of the previous bald patches, but the new hair was absolutely devoid of pigment—perfectly white.

Not long since I saw a lad, fifteen years of age, with a marked case of alopecia. I made the same application four or five times, and the hair was completely restored. The next case occurred in a lady who for two years had been the subject of alopecia; three or four applications of the preparation I have mentioned brought about a new growth of hair.

I agree with Dr. Bloom that carbolic acid is one of the best local applications for stimulating the growth of hair. I cannot believe in the microbic origin of a case of this kind. All the cases that have come under my observation have recovered.

Dr. Carl Weidner:—I have always been under the impression that we had two forms of alopecia; one nervous and one microbic in origin. The special form of fungi, however, has never been quite settled upon. This has been my view, and I see no reason now for changing it. I will mention this one point, that I am inclined to question the apparent relation between the appearance of the alopecia and the injury in this case, considering that only twenty-four hours elapsed between the injury and development of the alopecia. It must say that I know of no analogue to it in medicine. We hear of people turning gray from fright; I understand there is pretty good authority for that. But I question whether sufficient disturbance of nutrition may occur in that short period, to account for the appearance of the alopecia; therefore, I would be inclined to look upon the etiological connection between the injury and alopecia in this case with some doubt. Of course, it is possible that shock and some special lesion of the cutaneous nerves had something to do with the trouble, though we know alopecia sometimes, and I might say usually, occurs without the history of an injury preceding it.

Referring to the peculiarity mentioned by Dr. Irwin:—I was under the impression that in many of these cases when the hair returns, it does so in modified color. I have seen several such instances.

Dr. J. N. Bloom:—Can you give us an idea of about the clinical differentiation between those cases of alopecia of nervous origin, and those supposed to be microbic?

Dr. Carl Weidner:—In those cases of microbic origin we usually find a few isolated hairs about the center of the patch, and the skin presents a peculiar waxy or oily appearance; it is also more or less roughened. In the other variety the skin is perfectly smooth and glossy and has the appearance of true atrophy.

Dr. J. N. Bloom:—I did not think the subject would be of sufficient interest to this particular society to warrant my going into the minor details. I wanted simply to report the case briefly and leave the society to draw its own conclusions. I

stated that there was a difference of opinion as to the causation or origin of alopecia areata, and that a collection of cases such as I reported might tend to show the correctness of the theory that it is of nervous origin.

I agree with Dr. Weidner that it is a very common occurrence for the hair to return gray or white. I can recall a number such instances, and some of the patients have been before this society. I have in mind now a patient who has been to see me within a week for another complaint; about two years ago alopecia was so marked that at least half the surface of his head was devoid of hair, which returned after treatment as I have outlined, the new growth being completely gray; the effect now is quite striking as the balance of the hair is dark brown. It is my practice in using concentrated carbolic acid to touch the patches very lightly, the change in color showing when the entire surface has been covered.

I did not want to go into a full discussion of alopecia areata, but there are a few points by which we can make a prognosis. The first thing, I look for is lanugo hairs. If they are present, I can say with a considerable degree of certainty that the hair is going to return in comparatively a short time. If asked how long, I tell my patients six months more or less. But when a patient presents for treatment, and upon examination, I find no lanugo hairs, then I say that the hair may return, though it may be a long time in doing so.

As regards the nervous theory, causing atrophy and falling out of the hair: While I am not at the moment prepared to either accept or contradict that theory, I think the case, I have reported looks as if such a causation is probable.

I think it is a matter of history that the hair of Marie Antoinette turned gray in one night. On the other hand Dr. Griffiths reported, at a recent meeting of this society, a case where the hair of a fireman turned from white to black within twenty-four hours after exposure to severe cold. There must be some peculiar nervous condition to account for such phenomena. It is also a pretty well-established fact that a patient may retire at night with a perfect suit of hair, and the next morning a bald patch is discovered. The suddenness with which this comes on is peculiar. I do not see how any marked clinical difference could be maintained in such cases.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### THE THERAPEUTIC OUTLOOK.

In entering upon the publication of the fourth volume of the AMERICAN THERAPIST it will not be out of place to take a brief survey of the therapeutic outlook, although it is only necessary for the most superficial observer to realize something of the magnitude of this modern movement by a cursory glance at our columns. As compared with the reports which appeared in medical journals a decade ago, what could be more astonishing than the results of modern treatment as now taught, guided by chemical, microscopical and bacteriological inquiry? And notwithstanding these vast accumulations of knowledge medical, we feel warranted in predicting that even greater changes will take place during the next five years, and as a consequence, twentieth century medicine will be as different from that which obtained fifty years ago as black is from white.

The radical changes here predicted will not, after all, be such that we cannot detect the germ of our future treatment in that which has been relegated to the past, but the change will be principally in our conception of disease processes. It does not mean that our old remedies will be

altogether discarded, but that they **will** be used with different objects, owing to advances in our knowledge of cellular structures and the effect of medicaments upon cell function and cell life. This is, indeed, a most promising outlook, because it means that reasons, good and sufficient from a chemical, physiological and clinical standpoint, will be at hand in defense of our methods of practice; that the physician of the future shall not blindly and thoughtlessly—and, shall we say, recklessly?—administer to his suffering patients remedies whose only commendation is that they have been used with success by others. The marked changes which have taken place even within the last five years are sufficient to demonstrate to the unprejudiced that heretofore our teachings were radically wrong. Physicians wrangle over the abuse of proprietary medicines by the laity; but if they simply mean that they are losing in the race, it cannot be gainsaid that the laity has undertaken to outrun the physician, and as a result, some of the latter are distanced in the race.

Let this disposition to study the physiological basis of medication be advocated in high places, rather than the memorizing of unintelligible formulas for impossible diseases; let the rising generation of physicians be drilled in the study of medicinal substances at the bedside as well as in the laboratory; and let the general practitioner not be deceived into the belief that each patient will come to his office with an entity in the form of disease which can be called by name. But the processes of differentiation might be carried forward to an almost unlimited extent; its influence through these columns will be felt only to a limited extent. Will the editorial fraternity take this subject to themselves personally, with a view to develop a more rational and scientific basis of medication in harmony with modern investigations and recent discoveries? The general practitioner is receptive, alert and attentive, and always appreciates the value of substantial additions

to his knowledge and to his medical armamentarium. Let us improve the last few years of this century by material additions to our therapeutic arsenal, that it may be referred to in future as a period marked by substantial progress in the healing art.

### *PROTECTING THE PUBLIC.*

At different times the writer has taken occasion to remark upon the incongruous position occupied by the medical profession in respect to patent or proprietary remedies; and judging from our pharmaceutical exchanges, the druggists are now also in a most distressing condition, owing to the systematic management of the proprietary current during the past ten years. Perhaps this matter will be more forcibly brought to the attention of our readers by referring to the recent action of the New York City Board of Health in regard to the sale of the new remedy for diphtheria. A penalty attaches to the sale of fraudulent or sophisticated antitoxin. Now, in the opinion of the writer, and of all good citizens, this is a proper legal enactment, because those physicians who might be deceived into using a sophisticated product would not only lose their patients, by which their reputation would suffer, but the loved ones in a family would probably be cut off, and thus the State deprived of the benefits arising from their life work. With the exercise of proper care, however, a physician of ordinary intelligence would not be likely to be led astray, since it is to his personal and professional reputation that his patients receive the very best medicaments which the market affords. The danger lies with the apothecary, who undertakes to supply this and other products, and who may supply that which can be obtained for the least money.

To meet this disposition to adulterate and sophisticate, a hue and cry was raised several years ago for the ostensible purpose of "putting down substitution,"

and we are now, or rather, the druggists are now beginning to reap the harvest from this warfare. They find that the cry has gone abroad in the land to an extent which is alarming, and they have learned to their disgust that the intelligent (?) laity will not accept adulterated or sophisticated products. Having been convinced from the circular and almanac literature of the great usefulness of certain proprietary remedies (and much of this literature distributed through the kindness of the unsophisticated druggist himself!), the layman demands that no substitution shall be practiced; and if Mr. KJones, the druggist, will not sell at the cut prices, Mr. Newonder, of the department store, will, so there he goes for his father and and his mother, his sister and his brother, "and so do his cousins and his aunts."

When the history of "substitution" is finally written, it will be evident that the cry was intended to promote the sale of patent and proprietary remedies, largely through the gullibility of the medical profession and the active co-operation of the unsophisticated apothecary, and the final result will be that the public will be convinced that these two classes of citizens have unwittingly "worked" them for the benefit of the proprietors. *Now*, these same affable and never-wearying proprietors can sell their remedies wherever they choose, since they have the endorsement of both physician and pharmacist, and they have no special need for "middle men."

The point which it is desired to bring out is this: Antitoxin is not the only remedy against which the public should be protected. Only this morning there comes through the daily press a report to the effect that a doting father (probably having unbounded faith in the recommendations of his doctor and druggist), prescribed for his sick child himself. To hasten recovery, the boy was promised a penny for each dose of medicine taken, and being anxious to earn as much as ten cents, he took the mixture faithfully for

that number of times—and then died! All this happened out in the territory of Oklohama, but it is not an isolated case. Indeed, cases of this kind are only too common throughout the country, and especially in the large cities. Let the New York Board of Health lay aside politics long enough to make a close study of the demand for remedies which are calculated to do harm to the rising generation, that are undermining the health of America's sons and daughters; and when they have found these conditions to be quite as dangerous as would be the results of sophistication of antitoxin, let them ask the legislature to pass a law which will give them equal authority to "regulate" the sale of patent and proprietary remedies.

The question will be asked, If these statements be true, why not stop the traffic! Aye, there's the rub! It cannot be done; it is too closely interwoven in our social and political life; the interests involved extend to, and are intimately combined with, our financial and industrial surroundings.

#### *PHOSPHORUS IN PNEUMONIA.*

In presenting to our readers the short paper by Dr. WETMORE, entitled, *Phosphorus in Pneumonia*, we cannot refrain from making some editorial comments upon the same, more especially for the purpose of developing the true conception of its value in this disease. As a preliminary to these remarks, it should be mentioned that while the heading would lead to the inference that phosphorus is the remedy for pneumonia, Dr. WETMORE does not depend upon that alone. Neither does he depend wholly upon internal medication, but advises the external application of hot poultices, and this practice we must absolutely condemn. True, a patient with this disease may "weather the storm," and come off with colors flying; but we shall never know how much harm has been done, how recovery has been

retarded, how the vital functions have been deranged generally by the use of this measure, which has everything to condemn it and nothing in its favor. Indeed, the brief record of the first case recorded shows that the patient, a most unpromising one, too, recovered without the application of the poultice. For many years—nearly ten years—the writer has raised his voice, in season and out of season, protesting against the use of poultices and local applications of like character, but it is only within the past year or so that surgeons have learned the sad story of their destructive influences. Will the physician of the nineteenth century ever see the folly of his ways and cease to walk therein?

As to internal medication, Dr. WETMORE advocates the judicious use of arterial sedatives, and this is well, since the phosphorus, in whatever form it is taken into the circulation, is thereby properly distributed throughout the system by means of the blood- and lymph-vascular systems; it also reaches the inter-cellular fluids, and wherever found, it continues to enact its rôle of an active oxidizer. The dose in this or any other disease where indicated, is not an arbitrary matter requiring mathematical exactness, since, when given in large doses, but a small portion is used by the organism in accomplishing the purpose for which it is given, the remainder being stored or intercepted in the liver and kidneys (and probably in other tissues and organs), in their attempts at elimination. Such is the fate of iron, arsenic and other mineral substances.

Although the above claim may appear somewhat tending toward transcendentalism in medicine, it is susceptible of proof. For example, let a person having a gold-filling in a tooth go to his dentist and have it thoroughly polished so that it will be absolutely free from tarnish. Then let him add to one ounce of alcohol a single drop of phosphorus tincture. Into this attenuated solution, dip a blank sugar-of-milk-tablet, allowing it to remain long

enough to become saturated; then let this saturated tablet be swallowed without coming into contact with the teeth. On returning to the dentist he will be able to discover the effect upon the filling at the end of twenty-four hours. How, it will be asked, does such a minute quantity of phosphorus ever succeed in finding its way back to the buccal cavity? It is so exceedingly small that should any escape oxidation, we would naturally assume that it would find exit from the body by other channels. Undoubtedly, it is eliminated through the salivary glands, but it must first pass through the pulmonary circulation.

What, then, is the probable physiological basis of phosphorus medication in pneumonia? Certainly not because this drug produces fatty degeneration of the liver; nor because it destroys the functional activity or structure of the kidney cells; nor because it produces necrosis of the bones; nor because it is eliminated through the saliva. Neither should we assume that its beneficial effects are due to its special properties as an oxidizer, because potassium chlorate is an active oxidizer, and potassium permanganate is an oxidizer, and hydrogen dioxide is the most active oxidizer of all, and yet none of them have been advocated in the treatment of pneumonia. Evidently, however, the value of phosphorus depends upon its power to *stimulate* oxidation throughout the body. This influence must be especially felt in the pulmonary structures, which is a sort of reservoir for leucocytes, whose protoplasm becomes thoroughly saturated with the phosphorus-charged inter-cellular fluid. As previously pointed out in these columns, it is the function of protoplasm to store up oxygen, that it may be given off as the demand occurs; but in addition to this, the protoplasmic cells possess the power to convert this stored oxygen into ozone, which is the most active oxidizer known. Therefore, in pneumonia, the circulation being modified by arterial sedatives, what better

method could be adopted than that suggested by Dr. WETMORE, namely, the frequent administration of phosphorus in small doses. Not only in pneumonia, but in other diseases where debility is a conspicuous symptom, phosphorus is greatly esteemed, just because it promptly produces such a favorable impression upon the system; and as we have pointed out, this effect is due to its influence indirectly upon oxidation, by stimulating cellular activity. And thus is added another remedy to the credit of cellular therapy.

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THE RESUSCITATION OF STILL-BORN INFANTS.—During the past three or four years, in several cases of this kind, apparently under the most hopeless circumstances, when all other standard methods had failed, he has resorted to hypodermatic injections of brandy or whisky with the most satisfactory results. The amount used is five or six drops in first one arm and then in the other, fifteen drops being the largest quantity used in a single case. If the mother has suffered alarming ante-partum hemorrhage, and the infant has been drained of blood before its birth, this method can avail nothing.—Bedford Brown, *American Journal Medical Sciences*.

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TANNIGEN IN ACUTE INTESTINAL CATARRH.—Since its advent into therapeutics tannigen has been chiefly utilized in chronic affections of the intestinal canal, and has been recommended by Drs. Muller and Kunkler especially in diarrhea of phthisical patients. Recently Dr. Richard Drews, (*Allg. Med. Cent.-Ztg.*, No. 35 and 36, 1894) has published the results of his experiments with tannigen in 55 cases of various intestinal diseases of childhood, which, in his opinion, demonstrate sufficiently the curative effects of tannigen upon the diseased intestinal canal and prove that this remedy is efficient in a larger number of cases than those previously in use, such as calomel, benzoate of soda, bismuth, naphthaline, etc. Unlike Kunkler, Drews found that the remedy is as useful in acute as in chronic catarrh of the intestinal canal. In acute enteritis and gastro-enteritis the administration of tannigen in doses of 0.2 to 0.5 gm. three times daily in connection with the regulation of the diet, affected a more rapid cure than any other method of treatment. The author advises that after the disappearance of the catarrhal symptoms, the drug should be continued for two or three days, for the removal of any remaining intestinal irritation and for the prevention of recurrences. In conclusion he remarks as follows: "Tannigen is an excellent remedy in the intestinal diseases of childhood, producing a prompt cure by virtue of the astringent and anti-bacterial properties of tannic acid. Aside from this it has the advantage over similar remedies of being tasteless, odorless and of not disturbing the gastric functions, and of being perfectly innocuous even when administered for a long time. For the latter reason it can be prescribed in knife-pointful doses in the case of poor patients.—*Times and Register*.

## Book Notices.

**SYLLABUS OF GYNECOLOGY:** Based on the American Text-Book of Gynecology. By J. W. LONG, M. D., Professor of Gynecology and Pediatrics in the Medical College of Virginia, etc. Cloth, 8vo., pp. 133. Philadelphia: W. B. Saunders, 1895. (Price, \$1.00, net).

The object of the present work is three-fold, viz.: First, it may be conveniently used for lecture notes by teachers; second, it is adapted to the wants of the student, in order that he be enabled to systematize his knowledge more completely; and third, as a convenient reference work for the busy general practitioner. The work seems to be admirably adapted to the purposes intended, and each alternate page being left blank, there is room for notes which can be added from time to time in regard to new treatment or improvements upon the recommendations in the original work.

The book is well printed and handsomely bound (open end), and is prefaced with a convenient and tolerably full index.

**OBSTETRIC SURGERY.** By EGBERT H. GRANDIN, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc.; and GEORGE W. JARMAN, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc. One hundred illustrations and Photographic Plates. Cloth, 8vo., pp. 220. Philadelphia: The F. A. Davis Co., 1895. (Price \$2.50 net).

The peculiar feature about the work before us is that it is intended to represent the personal teachings of the authors, references being added only for the purpose of enabling the reader to decide upon disputed points, and if for no other reason, the work is to be particularly commended. Too few of our recent works are calculated to elaborate the personal views and beliefs of the author, and hence, most of them are woefully lacking in individuality. As an original work, and one which reflects the best teachings in obstetric

surgery, it is a pleasure to commend it to the favorable attention of our readers. The publishers are entitled to the thanks of the profession for issuing the book in this sumptuous form, and we trust it may serve to create a feeling of rivalry among their competitors in this special direction. The printing and illustrations are all that could be desired.

**A MANUAL OF THE MODERN THEORY AND TECHNIQUE OF SURGICAL ASEPSIS.** By CARL BECK, M. D., Visiting Surgeon to St. Mark's Hospital, New York City, etc. Illustrated. Cloth, 12 mo., pp. 306. Philadelphia: W. B. Saunders, 1895. (Price, \$1.25 net).

Now that several states have enacted legal restrictions in respect to ophthalmia of the new-born, it would be quite in keeping with this line of protection that the various legislatures should pass laws regulating *sepsis*, and more particularly surgical sepsis. No one should be permitted to be without the benefits to be derived from asepsis, not alone for himself, but for the community at large. Certainly, the principle is quite as applicable here as is the regulation of quarantine for the protection of the public against infectious and contagious diseases. Any person suffering from an improperly treated wound is liable to spread contagion among all with whom he comes into contact, and especially is this true when the affected person dares to attend public meetings or entertainments. The work before us is entitled to our most favorable comment, because it is well written, conveys the most recent teachings, enters fully into details and is handsomely illustrated. Indeed, although there are other works embracing a like scope, the low price at which this is offered, taken together with its completeness, brings it within the reach of thousands of physicians who otherwise would be lacking in many essential elements to successfully carry out the schema covered by surgical asepsis.

**LOCAL ANESTHETICS AND COCAINE ANALGESIA.**

**Their Uses and Limitations.** By THOMAS H. MANLEY, M.D., Member of New York Academy of Medicine, Consulting Surgeon to Fordham Hospital, etc. Cloth, pp. 183. St. Louis: J. H. Chambers & Co., 1894.

When arms and legs are amputated, and other major operations performed, it may safely be presumed that a book devoted to the subject of local anesthesia would not be out of place. Ether and chloroform are, and probably always will be dangerous, and the sooner some safer method of obtunding sensation generally is discovered, the better for humanity. In eye surgery, cocaine has practically banished other anesthetics, but in other departments its field has not been so broad.

The author of this book, however, after giving several chapters to general considerations, different kinds of local anesthetics, the indications for their use, and the *modus operandi* of their action, devotes his attention in the second part entirely to the subject of cocaine. He details a large number of varied cases in support of his plea for the more general use of cocaine. He does not rest with mention of minor cases, but cites operations on the skull, in the neck, such as tracheotomy and tying the various arteries in that region; operations on the breast, in the abdomen, surgery of the bladder and gynecological surgery, and much more.

The book is an interesting contribution to our knowledge of cocaine application, and it is a pity it should be marred by so many typographical errors and faultily constructed sentences. S.

**LABORATORY GUIDE FOR THE BACTERIOLOGIST.**

By LANGDON FROTHINGHAM, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders, 1895. (Price, 75 cents.)

This is a little work with flexible back, and of about seventy pages, that can be warmly recommended for the niche it is intended to fill. Every alternate page is blank for the purpose of making notes. At the beginning the author gives a very satisfactory labor-saving bacteriological technique, of his own invention, an important point in this kind of work, as twice as much and more can be done by having the various necessities within arm's reach and a fixed plan of procedure. He then gives, in a clear and concise manner, all the most important and useful methods of preparation and staining, along with formulæ for preparing the various stains, mounting media and culture media.

As a convenient and complete book for the bacteriologist's work-table, it is hard to see how this could be improved upon. S.

**PUBLICATIONS RECEIVED.**

**Notes on a hitherto Undescribed Skin Disease, Endemic in Central America, Called by the Natives "Bulpiss."** By OTTO LERCH, Ph.D., of New Orleans, La. Reprint, 1895.

**Vaginal Celiofomy, with remarks on the new field it opens up for the treatment of backward displacements of the uterus with diseased adnexæ by vagino-fixation.** By HIRAM N. VINEBERG, M.D., of New York. Reprint, 1895.

**The Use of Scissors in Excision of the Tonsils, with reference to a new instrument.** By ARTHUR AMES BLISS, A.M., M.D., of Philadelphia. Reprint, 1895.

**The Spinal Cord Lesions and Symptoms of Pernicious Anemia.** By CHARLES W. BURR, M.D., of Philadelphia. Reprint, 1895.

**Nerve-Suturing (Neurorrhaphy): Degeneration and Regeneration following Section; Microscopical Appearances.** By DEFORREST WILLARD, M.D., of Philadelphia. Reprint, 1895.

**The Value of Gude's Pepto-Mangan in the Treatment of Anemia.** By HUGO SUMMA, A.M., M.D., of St. Louis. Reprint, 1895.

**On Benzoyl-Guaiacol as a Substitute for Creosote.** By Dr. F. WALZER. Reprint, no date.

**Surgical Clinic (Illustrated).** By AUGUSTUS C. BERNAYS, M.D., of St. Louis. Reprint, 1895.

**Anti-Tubercular Serum.** The treatment of consumption by sero-therapy—report and presentation of cases treated, exhibition of serum, etc. By PAUL PAQUIN, M.D., of St. Louis. Reprint, 1895.

**The Pre-tubercular and Pre-bacillary Stage of Consumption.** By CHARLES MANLY, A.M., M.D., of Denver, Colorado. Reprint, 1895.

**Significance of Cough with Reference to Treatment.** By W. H. THOMSON, M.D., of New York. Reprint, 1894.

**Report of a Case of Epithelioma and one of Sarcoma of the Larynx.** By ARTHUR AMES BLISS, A.M., M.D., of Philadelphia. Reprint, 1894.

**The Combined Face-guard and Tongue-depressor.** By S. SELIKOVITCH, M.D., of Philadelphia. Reprint, 1895.

**Calomel: A study of its physiological action and therapy in gastro-intestinal disorders in 144 cases.—Is it a diuretic per se?** By W. BLAIR STEWART, A.M., M.D., of Atlantic City, N. J. Reprint, 1895.

**Supra-pubic Cystotomy for Calculus of the Bladder.** By A. H. MEISENBACH, M.D., of St. Louis. Reprint, 1895.

**The Treatment of Corneal Ulcer by the General Practitioner.** By S. LEWIS ZEIGLER, M.D., of Philadelphia. Reprint, 1895.

**Appendicitis.** By JOHN B. DEEVER, M.D., of Philadelphia. Reprint, 1895.

**Blephoroplastics.** By PETER D. KEYSER, M.D., of Philadelphia. Reprint, 1895.

**A Clinical and Experimental Study of the Leucocytosis of Diphtheria.** By JOHN LOVETT MORSE, M.D., of Boston. Reprint, 1895.



Left Hemiplegia, with report of a case. By J. T. ESKRIDGE, M.D., of Denver, Col., with remarks by FREDERICK PETERSON, M.D., of New York. Reprint, 1895.

Syphilis and Alcoholism of the Brain, Spinal Cord and probably of the Nerves of the Legs. By J. T. ESKRIDGE, M.D., of Denver, Col. Reprint, 1895.

Furunculosis of the External Auditory Canal. By S. McCUEN SMITH, M.D., of Philadelphia. Reprint, 1895.

The Technique and Indications of Vagino-Fixation (Mackenrodt's Operation). By HIRAM N. VINEBERG, M.D., of New York. Reprint, 1895.

Tubal Mole Pregnancy, with some remarks on the differential diagnosis of ectopic gestation. By HIRAM N. VINEBERG, M.D., of New York. Reprint, 1895.

Rapid Speech Development in an Adult, following operation for tongue-tie. By G. HUDSON MAKUEN, M.D., of Philadelphia. Reprint, 1895.

Circular on the Care and Disposition of Persons found unconscious on the streets or elsewhere. Prepared by a special committee of the Medical Society of the County of Kings, N. Y. Reprint, 1895.

Report of Cases of Brain Lesions—Abscesses, meningitis and sinus thrombosis—resulting from disease of the middle ear. By J. T. ESKRIDGE, M.D., of Denver, Col. Reprint, 1895.

Traumatic Cyst of the Brain from an injury received twenty-three years before. Epilepsy, operation, recovery. By J. T. ESKRIDGE, M.D., of Denver, Col. Reprint, 1895.

Report of the Wilkes-Barre City Hospital, for the year ending December 31, 1894. The Wilkes-Barre Times, 1895.

## ANNOUNCEMENTS.

The Johns Hopkins Medical School. Annual Announcement, 1895-96.

The Jefferson Medical College of Philadelphia. Seventy-first annual announcement; session of 1895-96.

Announcement and Catalogue of the Baltimore Medical College. Session of 1895-96.

Announcement of the Eclectic Medical Institute, Cincinnati, Ohio. One hundred and second session, 1895-96.

Western Pennsylvania Medical College (Pittsburg). Session of 1895-96.

University of the City of New York: Medical Department. Circular of Information, 1895-96.

Ontario College of Pharmacy (Affiliated with the University of Toronto). Annual announcement, 16th session, 1895-96.

University of Tennessee: Medical Department, Nashville, Tenn. Announcement, 1895-96.

## Miscellany.

ITCHING AND RESTLESSNESS IN MEASLES.—Dr. T. L. F., Red Wing, Minn., asks what will "prevent itching and restlessness in measles cases where rest is desirable." Small doses of acetanilid, phenacetin or phenocoll hydrate ( $2\frac{1}{2}$  to 3 grains) twice daily, usually exert decidedly beneficial effect.—*Medical Standard*.

TRIONAL, a pure Hypnotic.—This remedy is prescribed by Dr. Gaillard in doses of 1 gram daily in unleavened bread to avoid the nauseous taste of the drug. A few cases are refractory to its influence, but generally sleep is produced in twenty-five minutes, and lasts almost all night. Since it appears to be purely hypnotic in its action, the author considers it specially indicated in neurasthenic cases.—*Univers. Med. Journal*.

FORMULÆ FOR DISPENSING ALUMNOL.—(1), in the pure state as a dusting powder for venereal sores; (2), mixed with 80 to 90 per cent. of French chalk for burns; (3), in  $1\frac{1}{2}$  per cent. solutions for washing excoriations, acne or eczematous surfaces; (4), in from 2 to 10 per cent. alcoholic solution for urticaria, sycosis, etc.; (5), as an ointment, alumnol, 10 parts; hard paraffin, 5 parts; liquid vaseline oil, 35 parts; anhydrous wool-fat, 50 parts; (6), as a collodion, collodion, 160 parts; castor oil, 20 parts; alumnol, 18 parts.—*Les Nouveaux Remèdes*, January, 1895.

INVESTIGATIONS RELATING TO THE VIABILITY OF THE TYPHOID BACILLUS.—(Uffelmann, *Archives Kinderheilkunde*.) The pure cultures and the bacillus mixed with feces were dried and kept under observation for a long time. The bacilli were found to stand the drying test much better than the cholera bacillus. In dried earth from the garden, in white sand and on pieces of clothing, the bacillus lived as long as two months. The dust from these dried substances infected gelatin and milk from which the pure cultures were obtained. This shows that the typhoid bacillus may be transmitted through the air.—*Med. Fortnightly*.

GUAIACOL.—The use of guaiacol both externally and internally has attracted much attention of late. Dr. J. M. Anders reports a number of cases in the *Therapeutic Gazette* and as a result of his work draws the following inferences:

1. Guaiacol is an efficient local sedative, as shown by its analgesic power when employed in painful affections.
2. It is more potent when administered hypodermically than when applied to the skin surface.
3. It has not, in practically afebrile conditions, produced any noticeable lowering of temperature or other unpleasant effects in his experience.—*Med. and Surg. Reporter*

# The American Therapist.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### ZYMOTIC DISEASES AND THEIR MODERN TREATMENT.

#### II.

By J. LINDSAY PORTEOUS, M.D., F.R.C.S., ED.  
Physician to St Joseph's Hospital, Yonkers, N. Y.

In the present paper I purpose considering phthisis pulmonalis. The word *φθισις*, which is from *φθίω*, I consume, is the Greek derivative of phthisis. In passing, I may mention that the pronunciation of the word as "Tissis," which is very common, is entirely wrong. No twisting of the original Greek can possibly convert *φθισις* into Tissis. To say that the word is anglicized is no excuse in this case. (Gould gives *thi'-sis* or *te'-sis*.)

There is no disease which has been so much discussed and written about, or had so many different lines of treatment laid down, or so many "perfect cure" medicines and specifics tried—with, I may add, so little success—as this scourge to humanity. Even in this advanced age we are still in the dark, although we hope against hope that now a slight glimmer of light is appearing on the horizon of the scientific world which may be the beginning of a brilliant era for the care-worn, tuberculous victim who, ever hopeful that a panacea will be found to relieve him from his bondage, has hitherto, after restless nights and weary days, crossed the Styx in the heyday of youth to join the majority.

The theories of the origin of phthisis have been numerous and varied. We know that it is no new disease. If we turn over the pages of that much criticized and abused, but withal, grandest and noblest of books, the Bible, we will find

in Leviticus, 26th chapter and 16th verse, the following lines: "I also will do this unto you; I will even appoint over you terror, *consumption*, and the burning ague," etc. Again, in Deuteronomy, 28th chapter and 22d verse, we find, "The Lord shall smite thee with a *consumption* and with a fever." The word *consumption* (*ἀσπορία*) may mean the wasting, hectic fever which accompanies pulmonary disease, and "with a fever," may denote the high temperature which always accompanies consumption. The description of disease given in the Old Testament, is very vague, but we must remember that the writers were not professional men. Those, however, written by St. Luke, in the New Testament, are far different; they generally give a good description of disease, because Luke was a physician.

In referring to the Old Testament, as the first book to mention consumption, I do not mean to assert positively that that word, as used in the Old Testament, means the disease now commonly known by that name; but it is just possible that it does, and it does not require much stretching of the imagination to see that the disease mentioned *was* what we call phthisis.

In Gardner's dictionary, published in 1847, we find that phthisis is defined "as a wasting of the frame from whatever cause," but in the medical language of the present day the term is restricted to the disease commonly called pulmonary consumption or phthisis pulmonalis. The definition is very unsatisfactory now-a-days, because the bacteriologist has become so expert that we look for something of a more precise nature in describing a disease; whether we always get it, is another question.

In 1866, Aitken defines tuberculosis as "a particular morbid condition of the system attended by a persistent increase of temperature, followed by a continuous wasting of the body and the growth of a substance in various tissues and organs, especially the lungs, to which the name tubercle or tuberculous matter has been applied."

One class of pathologists, namely, Bennett, Rokitsky, Ancell and Lebert, holds that tubercle is merely an exudation essentially morbid in character. Another class, namely, Williams, Reinhardt, Henley and Addison, holds that tubercle is a retrograde metamorphosis of pre-existing structures, tissue-elements or morbid products. Virchow held the opinion that the term tubercle should be limited to the minute, indurated granulations which, as Lebert originally pointed out, are the result of increased nuclear growth in the fibrous tissues—what he denominated fibro-plastic corpuscles (Bennett).

Paget, fifty years ago, enumerated the elements of tubercle as follows: (1) Molecules, granules and oil-particles, usually of small size and extremely predominant in yellow tubercles; (2) Nuclei of cystoblasts of various shapes and structure, but all degenerate or defective—some glittering, hard-edged; wrinkled and withered; others granular, and few or none with distinct nucleoli; (3) Certain compound cells, as described by Vanderkolk, and consisting of epithelium charged with the nuclei which become the common tubercle corpuscles.

The up-to-date definition is, "A new growth in the form of small nodules, or a collection of nodules, each of which is due to an irritative process produced by the presence of a *specific microbe*, the *bacillus tuberculosis*." By tuberculosis is meant the growth and development of tubercles. To Koch is due the honor of this great discovery. He it was who first conclusively proved that the bacillus tuberculosis was the actual cause of tuberculosis. All previous theories of the cause

of this disease must now, in the nineteenth century, and forever fall into oblivion. From its rod-like appearance, Koch called it a bacillus (from baculum, a rod or small staff). These rods are sometimes bent, sometimes straight, but at all times very minute, so minute that it is necessary by means of staining to bring them into contrast with surrounding debris, tissue or cell-nuclei to make them visible. This property of the protoplasmic substance of bacteria being capable of absorbing such brilliant coloring matter as aniline dyes, was that which first led Koch to the discovery of the tubercle bacillus. (Grün) Fuchsin (magenta) was the dye used by Koch; he stained the sputum with it and then immersed it in dilute nitric acid. By this process the coloring is absorbed from all surrounding substances, but the tubercle bacilli stand out as red rods on a colorless, or pale-red ground.

The various definitions above given only tend to show how difficult it is to arrive at the truth regarding the genuine cause of disease. We do not pretend to say positively that even Koch is altogether right; but as far as our present knowledge goes, we must accept his theory till something more definite presents itself. The bacteria theory of disease having shown such excellent results in the treatment of surgical cases, we are apt to jump at conclusions in other cases without duly searching out carefully all the most minute and delicate intricacies which the search-light of the expert microscopist alone can discover. Pope's dictum of,

"A little learning is a dangerous thing;  
Drink deep, or taste not the Pierian spring,"  
is in no case more applicable than in the healing art.

So much for the definition and supposed primary causes of phthisis pulmonalis. The symptoms and diagnosis of the disease are so well known that it would be superfluous at this time to enumerate them. Let us, however, give a brief sketch of the various treatments which have been advocated in past years and at

the present date. From the beginning of the century and even prior to that, the main object has been to repair the waste supposed to have been caused by malnutrition. This, I may say, is still largely the practice in vogue. There have been many reports of cures by this mode of treatment. By improving the digestion, which is always more or less impaired, we are keeping up the strength of the patient till Nature works a cure. In Aitken's Science and Practice of Medicine, he gives the following indications for treatment:

(1) Improve the faulty nutrition, which is the cause of tuberculous cachexia—and of the exudations assuming the character of tubercle.

(2) Subdue the fever which attends the growth and changes going on in the tubercle nodules, and favor the absorption either of the entire exudation, or of such portion of it, so that what remains may undergo such changes as are consistent with the future harmless existence in the lungs or other parts.

(3) To prevent the recurrence of fresh exudations by careful attention to hygienic regulations, especially during the intervals of apparent return to health.

The first of these indications was supposed to be fulfilled by the administration of fatty substances. Thirty or forty years before the date at which Aitken wrote the above (1866), Hughes Bennett, the then greatest living authority on tuberculosis, advocated the use of cod-liver oil in tablespoonful doses three times a day, but when the stomach was irritable only one or two teaspoonfuls were to be given. *(He claimed that the blood was impoverished through the preliminary dyspepsia which precedes the growth of tubercle; that in pulmonary phthisis, the growth of tubercle results from the exudation of lymph and of new growths which are consolidated primarily in the air-vesicles, and that the successive formation and softening of these tubercles lead to ulcerations of the pulmonary and other tissues and promote wasting of the body generally).*

In Bennett's opinion, cod-liver oil was

the remedy that restored most rapidly the exhausted powers of the patient, and also improved the nutritive functions generally and stopped emaciation. At this period six hundred gallons (!) of cod-liver oil were used annually in Brompton Hospital for consumptives, London. Creosote was recommended to be added, as it made the stomach more tolerant to the oil. *That is not the reason assigned for giving it now,* but rather with the expectation that it will act as an antiseptic.

One of the most constant conditions of phthisis is the deficient proportion of blood-corpuscles. Simon, Snow and Thompson attempted to show that cod-liver oil improved this condition. They found, after a careful series of experiments, that the blood-corpuscles increased and the fibrin decreased under its use. In comparing the condition of the blood in health with the blood in several different diseases, they found the following average proportion of some of the constituents of this fluid:

In Health.....	Albumen	76,	Corpuscles	130;
Pneumonia.....	"	80,	"	122;
Phthisis.....	"	100,	"	78;
Rheumatism....	"	100,	"	74;
Diabetes.....	"	105,	"	80;
Bright's Disease	"	103,	"	50;
Chlorosis.....	"	72,	"	56;
Carcinoma....	"	45,	"	55.

At the beginning of this century, cod-liver oil was first used as a medicine; it was used then for rheumatism. In the above table we notice that rheumatism and diabetes present the greatest similarity to phthisis, and in both, cod-liver oil is beneficial. Cod-liver oil has no doubt been of much benefit to the consumptive, as it has helped to stay the condition "that day by day, and grain by grain the mortal part wastes and dies away."

We at the present day can hardly imagine why resort was had to blood-letting in this wasting disease; yet we read that so late as 1860, "moderate general bleedings in acute phthisis, as well as local bleeding during acute exacerbations of chronic phthisis undoubtedly confer a temporary relief in the diminu-

tion of local pain and general febrile reaction." Bennett, ever in the front rank, objected to bleeding; he trusted to favor excretion by antimonials. At the same period, Sir James Clark writes, "Blood may be abstracted with advantage at any stage of consumption when the symptoms require it," namely, to diminish or remove congestion. Ah! False theory! Feed up with oil; run down with blood-letting. "Fill at the spigot and run off at the bung-hole." Dr. Wood, of Philadelphia, preached the same doctrine. Avoidance of close, damp rooms, and frequent change of air was advocated then as now. In fact, with the exception of blood-letting, the treatment of phthisis pulmonalis has not changed in fifty or more years.

The great discovery of Koch has at last settled the question of causation in man, but where the bacillus came from originally, I think, is not quite settled—and it matters little if it ever is.

About six years ago, the world was startled with the announcement that Koch, the discoverer of the bacillus tuberculosis, had likewise found a cure for the disease called consumption. His laboratory was inundated with urgent requests for a supply of the so-called lymph or tuberculin. It was worth its weight in gold. Nay, gold could not buy it. When once obtained, it was carefully treasured and only administered in hospitals before a select few. At the end of three hours, according to the nature of the case, a rigor was looked for, then a rise of temperature amounting to from three to five or six degrees. (In advanced cases, a rise of seven degrees has been noted, then a sudden drop of six or seven degrees, followed by fatal collapse and death). If there had been a mistaken diagnosis, the temperature would not rise so high. The anxious administrator, when he saw the reaction taking place, was filled with joy, and mentally exclaimed, 'Another poor soul has been saved from the jaws of death by this wonderful triumph of science.' What of the patient? He bore up manfully in the

hope that he was soon to be restored to health. The public prints teemed with reports of cases; the transients of Colorado and the Riviera hastened to the nearest "land of promise," and trustfully submitted to the gentle thrust of the needle which was to raise them, as it were, from death to life. But alas! how we weak mortals be deceived! Ere long, the silver streak in the murky cloud vanished, when all was despair and dismay.

"The lymph used, as it issues from the Koch laboratory, is a clear, tolerably mobile, straw-colored liquid, almost inodorous, of a slightly saline taste, and not, as many conjecture it to be, 'an attenuated culture' of bacillus tuberculosis; it is the fluid itself and does not contain the organisms." The method of treatment is not a case of acclimatization of the system, as is the theory of the inoculation of hydrophobia virus in an attenuated or mitigated state; but if we may be allowed to guess, we would suggest that the principle depends upon the fact that this bacillus, like others, is killed by an excess of its own poisonous excreta (Green and Severn). The active principle, as obtained by Koch's process, is far too powerful and can be used only when diluted ten times—that is, a ten per cent. solution is used. When taken by the mouth it is inert, but when used by means of inhalation, it is very powerful; so powerful, in fact, that it becomes dangerous, and dosage is so difficult to control that it never ought to be employed in this way.

We think enough has been said in the medical journals about the effects of this treatment, and the lamentable failure of Koch's so-called cure is so well known that none of us would feel inclined to experiment with it now on our patients. Tuberculin, however, has proved of immense value as a diagnostic agent in tubercle of the cow, for which it is extensively used.

The thyroid extract treatment in early cases of phthisis has proved very benefi-

cial in the practice of some physicians, and in at least two patients of my own it acted marvellously. Animal nuclein would have more beneficial effects, we think, if the exact amount of the dose could be ascertained. Tubercular antitoxin, we venture to suggest, will yet give to the consumptive the same amount of benefit as diphtheria antitoxin has afforded in that disease.

In 1889, Hericourt made many experiments with immunized dog-serum which proved of great usefulness. Since that time, Richet has, along with Hericourt, continued the research, and reports the *actual cure* of seven cases of advanced tuberculosis. However this may be, we hesitate to adopt the treatment until still further trials have been made and reports issued by other experimenters. We are, however, very hopeful that serum therapy may yet prove a boon to the tuberculous victim.

83 Warburton Avenue.

### THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATES.

By SAMUEL S. WALLIAN, A.M., M.D.

#### FIRST PAPER.

The word Climate, from the Greek *Κλίμα, Κλίνειν*, to slope, or incline, refers to the inclination or slant of the earth's surface as regards the sun's rays. Modern usage has made it mean not only much more but something quite different. In its original sense its determining factor was simply latitude, or latitude in connection with the earth's position in its orbit. As now used the term covers the comprehensive subject of meteorology,—temperature, atmospheric humidity, character of soil, rainfall, ocean currents, the direction of air currents, etc., etc.

Ptolemy was first to establish, or rather to propose and define, climatic belts. He divided the earth's surface, from the equa-

tor to the fifty-eighth parallel, into twenty-five distinct climates, each differing from the next in order by a quarter of an hour in the longest day in the year. From the fifty-eighth to the sixty-third parallel he divided into four climatic belts, differing half an hour each, and from the sixty-third to the sixty-sixth, into three climates of one hour variation each. From the polar circle to the pole he estimated or arranged six climates, each varying one month from its nearest neighbor. At the equator he fixed the width of the first climatic belt at  $4^{\circ} 15'$ , and diminished the width of the succeeding zones until at the forty-fifth parallel it was  $1^{\circ} 50'$ , and at the fifty-seventh parallel it was but  $30'$  in width. This fanciful and purely hypothetical division was for a long time recognized and generally accepted. As science advanced it became evident that latitude and the mere length of the day were not practical guides to the character of the climate. Long before the invention of instruments for measuring heat, moisture and atmospheric pressure, observation had demonstrated the utter unreliability and artificialness of this arrangement. With the advent of the thermometer, barometer and hygrometer, the word climate was gradually accorded a new signification, and as now applied, it is made to cover a comprehensive aggregate of all the atmospheric, meteorologic and other physical conditions affecting the organic world, both animal and vegetable,—heat, cold, rain, barometry, winds, sunshine, and all other sensible influences affecting terrestrial life.

The barometer dates from 1643, as a sequence of the discovery of the Torricellian vacuum, and heads the list of instruments of precision for making observations. The spirit thermometer followed in 1680; but not until 1738 were systematic observations undertaken and permanently recorded in series. The first observations made in this country of which we have any authentic record, were made by Dr. Lining, in 1738, at Charleston, S. C.

During the latter part of the 17th century, while these several instruments were still scientific novelties, great expectations were indulged in as to the positive and accurate results attainable by their use. But it was soon found that local readings varied with great irregularity and did not supply a basis on which to generalize or found a system. All rules deduced were found to be subject to so many exceptions and accidental interferences that interest in the subject waned, until the author of the *Cosmos* announced his broader and more universal generalizations, and with the co-operation of Herschel developed the scheme of isothermal lines which has since been universally accepted. In his work, "*Des lignes isothermes, et de la distribution de la chaleur sur le globe*," published in 1817, Humboldt demonstrated the absurdity of the theory or assumption that the decrease of heat is uniform with an increase of latitude, and proved that this decrease takes place much more slowly on the west coast of the old world than on the east coast of the new. By means of established isothermal and isochimal lines he also illustrated the difference between a sea and a continental climate, making it evident that, owing to disturbing causes, the earth's surface varies greatly in its relations to radiant heat, and that consequently the mean temperature of any given point is not in proportion to the radius of its parallel of latitude. Thus the isotherm of 59° F. touches latitude 42° in Europe, while it descends to 35° on this side the Atlantic; and Rome, Italy, lat. 41° 54', has about the same mean annual temperature as Beaufort, S. C., lat. 34° 41'.

Malte Brun defined climate as an assemblage of all those physical and natural circumstances connected with each particular locality which have a bearing upon the modifications of its temperature. This definition is elastic enough to embrace phenomena widely varied in character, often too distantly allied to each other to admit of their definite classification, and has been generally acquiesced in by later

scientists. And yet the actual climates of the earth as experienced by its living tenants, animal and vegetable, are too variable, too much subject to irregular extremes and non-periodic changes to admit of exact analysis. Accurate and long continued observations give a certain value to recorded results, but every year demonstrates that the tables of fixed quantities and general averages are subject to frequent and decided fluctuations, and cannot therefore supply a basis for anything approximating an exact science of climates.

Possibly no such science will ever be formulated or become a possibility; and while scientists have established the general fact that climates are not determined by parallels of latitude, astronomical influences, the obliquity of the earth's movements, or its relative position as to the sun, yet it must be acknowledged that the sun's heat is the fundamental factor and determining cause of all climatic variations, whether by direct and palpable or indirect and apparently remote influences. Air, atmospheric vapor and bodies of water, with their extensive systems of circulating currents, are powerful modifiers of climatic conditions which, without these disturbing agencies, would doubtless be much more uniform, season by season, though much less equable, day by day. Radiation and diffusion are the two uncertain factors so subject to incalculable variation and irregularity, which interfere with all efforts at systematic classification and practically negative the deductions from any series of however carefully recorded observations. Tropic heat and arctic cold are the counter-forces which are doing constant battle for supremacy, through both sea and air. The former rarefies and puts in motion large volumes of atmospheric air, stimulates animal and vegetable organisms to their highest condition of growth and activity, and in short, puts all organic masses capable of motion into active circulation. It causes constant and rapid evaporation

and subsequent deposition of vast quantities of water, estimated in a general way to be equal to an annual precipitation, at the equator, of ten feet, the quantity decreasing gradually to one foot at the Arctic circle. This water, in the form of vapor, raised by heat, is precipitated as the heat is dissipated, absorption and diffusion keeping pace with an essentially systematic, although seemingly arhythmic movement of the entire atmospheric mass. At the tropics this movement is to a certain extent counter to the rotary motion of the earth, through simple retardation of these fluid masses relatively to the earth's mass. Atmospheric circulation, therefore, depends upon an upward and inward motion within the tropics, through heat and resultant saturation, and atmospheric circulation is the medium through which temperate latitudes receive their deposition of moisture and their modifying quota of diffused heat. The combined influences of these agencies determine the character of a majority of the actual climates of the terrestrial world. Exceptions occur, as, for example, a certain few localities are noted for their distinctly maritime or sea climate, and others for their equally distinct inland characteristics.

Next to atmospheric conditions and movements, sea currents powerfully affect the climatic characteristics of certain inland localities. These currents have their origin, like hot-air currents, in the excessive heat of the tropics, where aqueous rarefaction keeps pace relatively with the rarefaction of the atmosphere. The result is a movement of the entire equatorial mass, and the establishment of distinct currents, which are in turn deflected and made tortuous by impinging on continental masses, both in Asia and America. In the former, the coast of China deflects the moving mass and originates the great Japan current of the Pacific, and in the latter, the Gulf Stream of the Atlantic is the result of continental interruption in the Gulf of Mexico. Secondary to, because themselves caused by the sun's heat, these two

great currents are the virtual arbiters of climatic conditions in the two hemispheres. They both move northward on the surface of vast seas and diffuse their excess of heat throughout immense areas. In a measure they also control, or at least deflect and modify, atmospheric currents, to which they impart humidity, and thus add an indirect factor in the formation of climates. The great Japan current sweeps northward carrying warmth and moisture to wide regions of country which would otherwise be uninhabitable. It also involves a counter current of cold deep sea water which rises to the surface as it strikes the west coast of the United States, from the mouth of the Columbia to the northern border of Mexico, and it is this topographic accident which gives to San Francisco its disagreeably cold summer winds, and to Southern California a heat-tempering influence which transforms a naturally tropic and otherwise undesirable region into the most equable, bracing and delightful climate yet discovered on the face of the globe.

The question remains an open one, What is climate?

Quoting the language of the lamented author of *Ramona*:

"Climate is to a country what temperament is to a man—Fate."

We denizens of Earth gaze at the shimmering moon, through a sixty-inch lens and promptly decide that she has no vestige of an atmosphere, no water, no soil, and that consequently neither animal nor vegetable life is possible on that practically dead luminary. We say knowingly that her climate is incompatible with organic life.

So, possibly the mayhap superior intelligences peopling the more favored planets of our solar system,—Venus, with her protecting envelope of brilliant clouds. Mars, with his lower thermic range, Jupiter, so given to annual leisure and diurnal hurry, with his isotherms and his parallels identical, his seasonal uniformity and his perfect equilibrium of day and



night,—how many of these look down commiseratingly on this comparatively insignificant planet and wonder how we pigmies can possibly survive the violent extremes of climate to which they perceive we are constantly exposed. Or if they do not with their superior instruments of exploration bring us into the actual field of vision, they no doubt wonder whether this unfortunate and climatically ill-favored little earth is even habitable! They detect our ice-bound poles, our burning tropics, and our hot-and-cold betweens, in consequence of our tilted axis, and pity the possible inhabitants of such an inconstant and incongruous sphere!

Helix, California.

### PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M. D.

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#### PUERPERAL TETANUS—TREATMENT BY SEDATIVES.

Dr. John N. Thomas, in describing a case of puerperal tetanus (*N. O. Medical and Surgical Journal*, June, 1895), which he attributes to a slight laceration (site not stated), says, "chloral and opium seemed to have given good results in this case, but I am not inclined to attribute the cure to either or both combined. The patient made a slow and tedious recovery, it being fully six weeks before she was able to walk around; but under the use of tonics, she gradually strengthened and gained flesh."

Following the line of treatment, suggested in the July *THERAPIST*, a physiological stimulant would be more rationally indicated than a sedative, it being shown that in tetanus the cells lose their protoplasm, and probably their nuclei.

Of the metals, copper, arsenic and some others, serve as agents of nervous anabolism. Strychnine is such an agent also; but its end is reached in another manner. Hence indications would point to their

use, and in strychnine arsenite we have a remedy potent for good. This is corroborated by Rummo who, by experiments, demonstrated that guinea-pigs in which a tolerance to strychnine had been established, were immune to injections of tetanus culture. Again, as the "poison of tetanus is precipitated upon the liver," the arsenic portion of the salt will favor elimination by "stimulating the cell-activity" of that organ.

#### IS THE USE OF DIGITALIS CONTRAINDICATED IN CROUPOUS PNEUMONIA? BATHS—QUININE.

Dr. J. S. Cain (*Atlanta Medical and Surgical Journal*, June, 1895), says, "The indications for treatment in the first stage (of acute croupous pneumonia), are to counteract and prevent, as far as possible, the tendencies to this process of solidification, and to antagonize any vice or toxic principle which may be depressing vital resistance. Lowering of blood-pressure, arrest of arterial tension and consequent engorgement of lung capillaries will retard or prevent the accomplishment of the first stage." To produce this he used in sthenic cases veratrum viride, or aconite, with quinine, and chloride of ammonium. He also uses digitalis, but cannot reconcile it with the indication.

Considering the action of digitalis, the explanation is easy. The drug stimulates the pneumogastric nerve, and the nerve, in turn, increases the energy of the heart. This forces on the blood current, and, consequently, prevents stasis of the blood if it has not yet occurred, and combats it if it has already taken place. If it is desired to obviate the tension of the blood-vessels (throwing too much strain on the heart) trinitrin will act splendidly combined with digitalis or its derivative digitalin. The writer has seen excellent results from a combination of these with strychnine, whose action is obvious.

In closing, the author says, "The skin has an important work to perform, not only as an eliminator, but as a dispenser of hyperpyrexia through the evaporation of its secretion. Hence, sponging with tepid

water and cleansing lotions should be kept up at seasonable intervals."

This statement leads us to speak of the almost universal employment of cold baths and cold sponging in pneumonia. It is deemed that the only effect thus produced is a lowering of the temperature. While this is important, there is another factor not less so. In 1893, Prof. Winternitz said that he had observed that the leucocytes in the blood increased to twice or even thrice their original number after cold-water applications. The great importance of a large number of leucocytes in assisting recovery from infectious diseases being admitted, the advantages possessed by cold water over other antipyretics will be readily appreciated. Pneumonia always presents a leucocytosis—an endeavor on the part of nature to combat the toxins,—and its absence or presence always influences our prognosis. This being so, a pertinent question is as to the employment of quinine, which, according to Bruce, reduces the number of visible leucocytes very greatly,—to one-fourth.

#### AUTO-INTOXICATION—CAUSATION—THE USE OF CALOMEL AND IPECAC—OF TONICS.

Dr. J. R. Lemon (*Medical and Surgical Reporter*), after explaining metabolism in a most simple and satisfactory manner, shows how much we must depend upon the emunctories to relieve the system of the poison produced by katabolism. In order that their functions are properly performed, it is necessary that the blood, circulatory apparatus and nervous system be in good condition. That the primary cause of disturbances in metabolism may be looked for from two sources, *i. e.*, the product supplied by the blood for pabulum and the oxygen, admits of no dispute. If the plasma takes to the tissues a supply that is over-rich in various constituents; that contains poisons that have not been eliminated by the emunctories; or that is deficient in nutritive principles; or if the supply of oxygen is insufficient from any cause, the tissues will not be capable of performing their metabolic changes in a proper manner (*Gaillard's Medical Journal*, July, 1895).

Attention is drawn to the subject because of the frequency with which we meet patients suffering from this trouble; and because of the simple means by which we can often relieve, and almost as often cure. Let us take, for instance, the example given by the author:—The patient awakes with a slight headache, depressed, dizzy; is sensitive to slight changes of temperature; has eructations, regurgitations. He is nearly always constipated; if not, "there is a feeling that the act is incomplete." In some instances we have seen the trouble take a neurotic form. Often the predisposing cause in this class of auto-intoxications is atony of the bowel. In such cases also there is congestion of the liver, due to the fact that the organ has attempted to prevent entrance of the poisons, generated in the intestinal canal, into the general circulation. No effort being made to aid it, the liver finally succumbs, allows the poison to gain access to the general circulation, and the result is auto-intoxication. However, "there is balm in Gilead." In this form of septicemia (it is a blood-poisoning), removal of the cause often leads to relief. Nothing seems to suit the condition better than a combination of calomel and ipecac, in doses of  $\frac{1}{100}$  of a grain each, given every hour until a grain shall have been taken. After the bowel has responded (we find the kidneys, which have been playing truant, entering upon their duty again), considerable amelioration follows. It is well to follow the mercurial by a saline; and epsom salt is the ideal here. May be it would not be impertinent to direct attention to the fact that the mercury does not act as a direct cholagogue as does ipecac. As it increases peristalsis, so does it act on the gall-bladder, causing the bile to flow. Ipecac acts directly upon the hepatic cells, increasing the amount of secretion, as it increases the secretion of the intestines. This is by the way.

Now comes the time (after we have established the secretions), to cure our patient, and for this purpose we will find

small doses of strychnine arsenite and belladonna (or atropine) to be as desirable as anything we could wish, for they fulfil all indications. The former gives tone to the cerebro-spinal system ("a consummation devoutly to be wished" in the neurasthenic class), acting upon, among other things, the muscular coat of the intestines. The acid radicle portion in being excreted through the liver exerts its alterative effect. Atropine acts as a stimulant to peristalsis.

**TANNIC ACID,—THE RATIONAL DOSE AS DEDUCED FROM ITS PHYSIOLOGICAL ACTION.**

Kunkler (Translation, *Texas Medical Journal*, July, 1895) observes, "If a solution of tannic acid is injected into the circulation, the first effect observed is always a narrowing of the lumen of the vessels. This contraction has escaped the observation of several of the more recent authors, because they selected solutions which were not sufficiently weak. Permanent contraction of the vessels can be produced only by solutions of the strength of  $\frac{1}{30}$  to  $\frac{1}{4}$  per cent; stronger ones produce a transient, momentary contraction, followed by the opposite condition, that is, vascular dilatation. \* \* Tannic acid does not act as a nerve irritant, so that a dilatation of the vessels of paralytic character can be excluded. We have, therefore, to deal with a primary stenosis due to constriction of the vascular walls, and with a secondary dilatation. In the stage of contraction, the diapedesis of white blood corpuscles, and, consequently, inflammation and supuration cannot occur."

Comment is hardly necessary, for to those who read between the lines the excerpt tells all. It explains, to a great extent, our failures in cases of diarrhea, of dysentery, of cholera infantum, etc., in which tannic acid and its modifications (as in catechu, kino, and krameria) have been employed. We have been administering the remedy in *irritant*, in place of *stimulant* doses; have aided the progress of the disease in place of the patient. Diapedesis has gone on, and, by our ignorance, we have driven off, so to speak, a powerful ally, the colorless corpuscles bearing reinforcements to the affected cells.

In view of the fact that that portion of the season in which enteric ailments are most prevalent is here, the article quoted is most appropriate.

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**DISEASES OF THE RESPIRATORY APPARATUS—THERAPEUTIC CONSIDERATIONS.**

By JOHN E. BACON, M. D.

**ADENOIDS.**

The above name is given to a condition characterized by the overgrowth of lymphoid tissue in the vault of the naso-pharynx; the condition is also called, hypertrophy of the third, of the pharyngeal, or of Luschka's tonsil. The mass occurs as a well-defined, round or oval tumor, usually asymmetrical, or as a soft, friable, irregular growth with papilliform projections hanging from the roof, sides and back of the cavity; the most frequent form is that first mentioned, and is usually situated between, and slightly posterior to, the cartilages of the eustachian tubes, attached to the vault and extending backwards to the posterior wall of the space. It is essentially an affection of childhood, being rarely found in patients past their twenty-fifth year.

*Symptoms* are, first, those of chronic hypertrophic rhinitis, obstruction to nasal breathing, with altered speech, part or all of the time, more or less discharge of altered mucus anteriorly or posteriorly into the throat. Second, a distinct train of symptoms which are almost pathognomonic, noisy respiration, snoring at night with frequent suffocative attacks, and night terrors, constant mouth breathing with lower jaw dropped, the lines between the nose and upper lip obliterated, the inner canthi of the eyes drawn down, and a peculiar oval contour to the face, the effect being to give the face a stupid, vacant expression. Ear complications are frequent, and are produced either by extension of the inflammation or by pressure on the tubes by the mass of adenoid tissue interfering with proper ventilation. Acute purulent otitis media, followed by persistent otorrhea for a long period, is the most frequent result. The writer believes this condition is more often caused by particles

of the septic mucus being driven into the ear during forced blowing of the nose than it ever is by nasal irrigation, or extension of a previous inflammation. One of the most important symptoms and results of adenoids is found in an arrested mental development as well as a depraved general health; this has been observed so many times that it is an established fact.

Shuttleworth (*Medical Annual*, 1895), in his article on idiocy, remarks the frequent occurrence of adenoids in young people presenting symptoms of mental dulness, but not imbecile; he says further, "It is remarkable how these obstructions to nasal breathing produce an appearance of stupidity not dependent upon brain power, and promptly disappearing upon the removal of the adenoids.

Harrison Allen (*Medical News*, June 22, 1895), divides the clinical manifestations of adenoids into three states: First, one due to simple hypertrophy of the mass, and leading to the obstruction of the naso-pharynx; second, one due to deformation of the bony wall of the naso-pharynx, which causes a gland of normal proportions to obstruct nasal respiration; and third, one due to a growth normally situated in a capacious naso-pharynx, which does not obstruct nasal breathing, but which acts in some obscure way to disturb seriously the general health.

Of the first two states the profession is well informed, but of the third group, where no local symptoms would lead the physician to suspect adenoids, more light is needed. Dr. Allen further says: "In the third group the mere size of the growth is relatively unimportant, but the fact that it is in itself mischievous is of first importance. Occasionally, a child will come under notice, in whom there are many phases of malnutrition: Stunted development, anemia, capricious appetite, intractable disposition, mental perversity, or dulness and tendency to take cold on slightest exposure. Such a child may, however, enjoy normal respiration. There is no deformity of chest or face; no en-

largement of tonsils; and therefore it is not justifiable for a physician to make an exploration of the naso-pharynx, much less propose an operation. All the conditions present are readily accounted for by the child's parents through interference with general health." The histories of three cases belonging to the third group, in which adenoids were neither suspected nor diagnosed until digital examination was made, are given in this paper, and the results of operation in all were very satisfactory and go far towards proving that the existence of adenoids may exercise a deleterious influence on physical health and mental acuity, apart from nasal obstruction.

*Diagnosis* is often made from the symptoms above outlined, but must be verified by physical examination. Anterior rhinoscopy will, in subjects with wide nasal chambers, reveal the growth, which appears as a glistening body back of the turbinates, which does not move when the patient swallows. Posterior inspection by means of the rhinoscopic mirror will enable the observer in case of absolute hypertrophy to make the diagnosis certain; the growth will be seen to occupy the space of the naso-pharynx and to come along down the septum, thus blocking the entrance of air from the nasal chamber.

Walter J. Freeman (*Phila. Polyclinic*, June 8, 1895), states in this connection, that a very moderate degree of hypertrophy will often obstruct nasal respiration seriously, and explains the fact by the theory of Paulsen and Keyser, that the air on entering the nasal chambers passes upwards to the upper border of the middle turbinated body, and follows this backward till it enters the naso-pharynx at the upper part of the choanae, upon which any enlargement of the pharyngeal would encroach.

In cases of relative hypertrophy and those belonging to the third group before mentioned, the diagnosis can only be made by digital examination. This is done by passing the index finger through

the mouth into the naso-pharynx, when the septum being recognized, any abnormality will be readily detected. This is not an easy, nor an entirely safe procedure, and must be carried out with extreme gentleness and care.

*Treatment:* Authorities differ widely as to the proper treatment of these affections. Seiss (*Burnett's System of Ear, Nose and Throat*) regards operation as decidedly dangerous, and declares that the majority of cases will recover under simple cleansing treatment, with attention to the general health. He makes the statement that the depraved general health and mental dulness are concomitant, due to the same cause as the adenoids, and not a result. It is true that some cases are not benefited by operation while others are cured, but the proportion of the latter is so great that the opinion of Seiss seems to be too sweeping.

Hernet (*Journal of Laryngology, Rhinology, and Otology*, June, 1895) states that he never operates unless the following symptoms persist in spite of treatment: Want of development, inaptitude for work, persistent headache, and aural complications. Since 1886 he has treated one hundred and three cases and has operated in but fourteen. The majority of laryngologists, however, regard operative measures as the only treatment that promises a cure, and certainly literature teems with reports of excellent results following operations. The operation may be done through the nose with curette or snare (Seiss, Meyer, Blake, Zeim), or through the mouth with the finger, either alone or armed with the gouge-shaped thimble (Browne, Allen), or by the post-nasal curette, cutting forceps, ring-knife, or snare (Gottstein, Griffin, Bosworth, Justi, Loewenberg, Hartman, Micheal and others). The operation is not without danger. Sanford, Mayo, and Browne have reported cases which virtually died under operation—one in convulsions—and cases of meningitis have been caused which have resulted fatally.

Many writers in current literature have asserted that the operation is easily done and without danger; this statement ought not to go unchallenged, for the procedure is a decidedly delicate one, and in incompetent hands may be one of great danger. The writer has personal knowledge of one case operated on by a well-known specialist, in which evidently too much of the tissue was removed, for now the vault is occupied by a glistening mass of scar tissue which, in contracting, has disturbed the eustachian tubes and has already greatly interfered with hearing and total deafness will ultimately result. Profuse hemorrhage is quite common and very dangerous owing to the position of the wounded arteries. Septic infection has occurred in the practice of the best operators, and the danger of wounding the cartilage of the eustachian tubes is great, unless the instrument be guided by the rhinoscopic mirror or the finger. Therefore, it is the opinion of the writer, that this operation is not to be attempted by those who have not had the advantage of the instruction and demonstration in the use mirror and instruments belonging to that region.

The proper mode of treatment, according to the opinions of the majority of observers engaged in this work is, in those cases in which there are no symptoms of aural affection, no headache, no marked interference with mentality or physical health, thorough cleansing of the passages with a mild spray applied through the anterior nares, and when possible directly to the affected parts, by the up-curved atomizer daily, and the application of the glycerole of iodine solution by a cotton mop to the naso-pharynx, twice weekly. General measures, baths, woolen underwear and good feeding, plenty of exercise in the open air, and the administration of arsenite of strychnine, gr.  $\frac{1}{100}$  to  $\frac{1}{100}$ , three times a day, to tone up the bloodvessels; these measures should be given a thorough trial for some months before operation is considered.

If the above measures fail to produce encouraging results, and in that class of cases presenting urgent symptoms, such as severe attacks of croup, night-terrors, and cough, otorrhea, or pronounced stupidity, with anemia and failure in general health, operation is indicated and should be thoroughly done; the vault should be cleared and enlarged faucial tonsils, if present, removed at the same time.

The writer always operates without anesthetic except in cases of older children, when a 4 % sol. of cocaine hydrochlorate is sometimes employed.

Many excellent operators always anesthetize, but it appears to be useless to expose a patient to the dangers of anesthesia, inhalation of blood and particles of adenoid tissue, and increased hemorrhage, for an operation that can be thoroughly done in two minutes or less and, according to the statements of hundreds of children, is not very painful.

The after treatment is, rest in bed and liquid diet for a week; the daily application of the powder of di-thymol to the wounded parts will promote healing, but unless the discharge is purulent and profuse no spray should be used for forty-eight hours, after which a daily cleansing will be beneficial.

The administration of nuclein solution tablets, one every three hours will exert a beneficial influence in preventing sepsis, and the arsenite of strychnine gr.  $\frac{1}{100}$  to  $\frac{1}{100}$ , three times a day will, by its tonic action, greatly assist in the cure.

#### NUCLEIN IN TUBERCULOSIS.

Dr. M. O. Teigen, of Minneapolis, (*Therapeutic Gazette*, June, 1895), gives a report of four cases of incipient phthisis treated with nuclein solution hypodermatically. In two cases, with each a very bad family history, the improvement was very marked; the night-sweats ceased after a short period, the cough lessened, the appetite was regained, and the areas of dulness and increased fremitus became appreciably decreased. Menstruation was re-established in one case after having

been suppressed for nearly a year. Both cases gained in weight at the rate of two and one-half pounds a week for about six weeks. Both other cases were improved at once under the remedy, but one had progressed to the stage of pulmonary ulceration and died, and the other was lost sight of after two week's treatment, during which time the night-sweats had ceased. Dr. Teigen says that two of his four cases were improved to a remarkable degree, quite unattainable by the older methods of treatment.

The fact that in all of the cases the regular night-sweats were improved at once and soon ceased altogether is significant, and shows the action of nuclein on the cells of the blood and of the nervous system in general. The cause of the profuse night-sweats in phthisis is irritation of the vaso-motor centres, and of the true secretory centers in the cord, by an impure, venous, and depraved blood, causing the dilatation of the peripheral capillaries and increased secretion of the sweat glands; hence the rapid disappearance of this symptom under nuclein medication is a proof of the action of the remedy as a restorer of cell action either by its virtue as a cell food, or as a cell stimulant, or both.

Another proof of its power to enrich the blood is the prompt re-appearance of the menses when suppressed by anemia. The writer has reported two cases in which it occurred promptly under nuclein treatment.

Reports like that of Dr. Teigen are significant as to the place rational therapeutics is taking in the progress of the age.

#### TONSILLOTOMY AS A PREVENTIVE MEASURE AGAINST DIPHTHERIA.

Dr. Foster Godfrey, of Mimico, Canada, (*Therapeutic Gazette*, June 1895), states that during an epidemic of diphtheria in the Victoria Reformatory, in 1893, out of fifty cases, forty-three gave a history of having had enlarged tonsils, and acting upon the theory that the deep crypts of the tonsils afforded excellent culture me-

dium for the reception and growth of the bacillus of diphtheria, he instituted the practice of removing every enlarged tonsil that came within the walls. The result was that during the spring of 1894 and 1895 there was no diphtheria in the institution, though the epidemic raged in the city from February to April of both years, as usual. He also notes that a number of the boys subject to recurring attacks of "quinsy," were permanently relieved by the operation.

Enlarged tonsils form a very good field for the growth and multiplication of any micro-organism, affording a tissue with a low vitality and a constant temperature and moisture; added to these conditions are pockets, deep and capacious (the crypts), and the spaces between the anterior and posterior pillars and the gland; it is infection in the last mentioned place that gives rise to the painful peri-tonsillar abscess, commonly known as "quinsy." Retention of food particles and secretion in the lacunae will set up a low grade inflammation with decomposition, giving rise to the foul breath and "chronic follicular tonsillitis." Adhesions between the anterior pillar and tonsil are very common, and these cases are particularly apt to develop peri-tonsillitis upon exposure; the adhesions also serve to pull laterally upon the gland, keeping the openings to the crypts more patulous than normal, and favoring the entrance of septic germs.

Before proceeding to wholesale excision, especially in cases where there are no symptoms to demand it, simple treatment should be tried and will very often be found to be very satisfactory, the more so, in suitable cases, because it leaves a gland with a function where Nature placed one. In cases where there are no adhesions between the anterior pillar and the tonsil, a daily spraying with Dobell's solution to cleanse the parts, followed by a thorough application of the glycerole of tannin, on a cotton mop, to both tonsils, will often reduce the gland to its normal

size. In cases where the adhesions exist they should be separated and kept apart by daily spraying and the application of the glycerole of tannin. In cases of old "follicular tonsillitis" where the plugs of epithelial debris with decomposing food are a source of annoyance to the patient, and the cause of frequent acute attacks, the application of full strength hydrogen dioxide by means of an applicator bent at right angles, and wound with a wisp of cotton and passed carefully into each crypt to its bottom, followed by the glycerole of iodine applied in the same manner, will often yield very satisfactory results. These measures failing, excision is indicated, and is best performed by means of the ring-knife, or guillotine, the tonsil being included in the ring, the fingers of the disengaged hand should be placed on the outside of the neck and gentle pressure should be made so that, as near as possible, the whole gland shall be removed; hemorrhage will be free, but it ceases in a few moments except in cases of fibroid tonsils, when the vessels are unable to contract. The bleeding may then be controlled by a pledget of cotton soaked in a ten per cent. solution of antipyrine, applied by the end of the fingers and held with pressure for a few moments. The after-treatment may consist of daily cleansing with antiseptic spray, and liquid food for a week. In view of the probable value of reduction of enlarged tonsils as a prophylactic measure, some of the above outlined measures are indicated in every case, and can be carried out quite as well by any general practitioner as by a specialist.

1. R Acid. tannici ..... gr. xx;  
Glycerini..... f. oz. i.  
M. et solve.
2. R Iodine crystals ..... gr. v;  
Potass. iodid..... gr. viii;  
Glycerini..... f. oz. i.  
M. et solve.

#### LATENT TUBERCULOSIS OF THE TONSILS.

Prof. Dieulafoy (*Universal Medical Journal*, June 1895), calls attention to a latent variety of tuberculosis, the favorite seat of which is the adenoid tissue of the naso-

pharynx. This is manifested by an exuberant growth of the lymphoid organs of that region, or by hypertrophy of one or more of the palatine and pharyngeal tonsils. He bases his beliefs upon experiment made by inoculation into guinea-pigs of fragments of enlarged tonsils and adenoid vegetation. Of sixty animals thus inoculated with tonsil tissue thirteen per cent. died with general tuberculosis, while of thirty-five inoculated with adenoid vegetation twenty per cent. became tuberculous. In all persons who furnished material for inoculation (enlarged tonsils and adenoid), the pharyngeal tuberculosis was primary and not consecutive to the pulmonary variety.

It is supposed that young subjects with enlarged tonsils provide a favorable soil for the bacillus of Koch, which finds easy access to the adenoid culture medium, with food and respired air. Prof. Strauss, of Paris, has demonstrated the presence of the bacillus of tuberculosis in the nasal cavities of persons, who habitually breathe the air inhaled by phthisical patients. An open wound is not necessary for penetration of the bacillus, for it can find its way through the epithelium and then reach the lymphatics, and enlarged cervical and sub-maxillary glands are the result. Lymphatic infection may be precipitated by an attack of measles, scarlet fever, or whooping cough. This glandular tuberculosis may remain localized and recovery occur; or it may become generalized by the lymphatic system. The third stage of tonsillitic tuberculosis is the spread of the disease to the lungs, reaching those organs by way of the lymphatics, thoracic duct, and right heart. This theory, though far from being proved, has in it some suggestions which, taken with the experience of Dr. Godfrey in diphtheria, should serve to show us how enlarged tonsils furnish a safe hiding place for all pathogenic germs, are a source of positive danger to the possessor even if they do no harm in other ways, and also to impress the importance of the atomizer and an antiseptic

alkaline spray as a toilet requisite to each one engaged in the care of those ill with contagious diseases, physician included.

#### COCAINISM OF NASAL ORIGIN.

Loewenberg (*Bulletin Med.*, March 17th, 1895), relates two cases of young women having serious toxic symptoms, insomnia, visual and auditory disturbances, anorexia, gastralgic pains, and nervous manifestations. The origin of the intoxication was a snuff-powder containing cocaine which had been prescribed for a form of rhinitis. The author protests against the abuse of the drug in current prescriptions.

The writer has seen instances of cocaine intoxication produced by the daily use of the remedy in powder or in the spray, and considers it distinctly dangerous to place so powerful a drug in the hands of the patients. The temporary relief in nasal obstructions and pains in coryza and in hay-fever, afforded by the spray, will induce patients to use it many times daily, and absorption is almost certain to follow with systemic effects. A remote consequence, not to be forgotten, is the secondary paralysis of the vaso-constrictor nerves of the bloodvessels of the turbinated bodies, leading to permanent dilation of the vascular spaces and hypertrophic inflammation with obstruction to nasal respiration; more or less loss of tone of the palatal and pharyngeal muscles also occurs.

It has been a matter of surprise to the writer that so eminent an author as Bosworth should advocate placing a spray of a 2 per cent. solution of cocaine in the hands of hay-fever patients (*Burnett's System of Ear, Throat, and Nose*), and observation of the effect of this practice has demonstrated that it is positively reprehensible, as the habit is too easily acquired and hard to give up.

A new pharmaceutical preparation has been recently brought out containing one per cent. cocaine with menthol and eucalyptus. This is now introduced to the profession under the name of "Cocalyp-



time," as a specific for hypertrophic rhinitis and hay-fever; we cannot too strongly caution the profession to be careful in prescribing this and similar preparations for home use, for only too soon will the patient discover the nature of the temporary relief-giver, and buy it on his own account to the great detriment of himself and to the physician who first prescribed it.

#### SEROUS PLEURISY AND TUBERCULOSIS.

Prof. Eichhorst, of Zürich (*Universal Medical Journal*, June, 1895), in a series of experiments made by both bacteriological examination of the effusion and by injecting the effusion into guinea-pigs, has demonstrated that a certain proportion of serous pleurisy cases are tuberculous, and are prone to develop tuberculosis subsequent to the apparent cure of the pleurisy. Five of the cases from which serum was obtained for injection, returned to his clinic later with fully developed tuberculosis. Of twenty-seven cases of serous pericarditis, eight were proved to be of tubercular origin. Prof. Eichhorst concludes that two-thirds of the cases of idiopathic serous inflammations are caused by tubercular taint.

149 Franklin St., Buffalo, N. Y.

**SYPHILIS ANTITOXIC SERUM.** — Hericourt and Richet report a case (*Deutsche Medicinal-Zeitung*, No. 60, 1895) of tertiary syphilis with ulcerated gummata on the leg, treated successfully with serum. The case had been treated for 3½ months with usual mercurial and other general agents, but without noticeable effect; then a serum taken from a mule, inoculated 54 days before with 20 ccm. of blood from a syphilitic patient, was injected for 18 days, 25 ccm. serum being employed all told; complete cure and cicatrization ensued within four weeks.

This serum for syphilis is now regularly obtainable, and if any of our readers employ this agent we solicit full clinical reports for publication.

## BACTERIOLOGY AND PATHOLOGY.

By CHARLES P. KNAPP, M. S., M. D.  
Pathologist Wilkes Barre, City Hospital.

### BACTERIOLOGY.

**Gonococcus**—Himan (*Proc. N. Y. Acad. Med.—Am. M.-S. B.*, June, 1895), after a very complete study, summarizes as follows: (1) The gonococcus of Niessen is never present in the normal urethra, as far as my experiments show; (2) the diplococci found in the normal urethra can be positively differentiated by Gramm's stain; (3) the diplococcus described by Turro, in connection with his acid media, is not the gonococcus; (4) I indorse Werthheim's conclusions, except I think liquid chest-serum two per cent. agar, etc., is the best; (5) Gramm's stain is the only crucial test for the gonococcus of Niessen, and should be employed in all cases; (6) the normal vulvo-vaginal tract is never the habitat for gonococcus, as far as my experiments demonstrated; (7) in specific colpitis the gonococcus found is identical with the one found in specific male urethritis; (8) my inoculation experiments on the male urethra confirm the belief in the specific power of the gonococcus.

**Bacillus Coli**—Gilbert (*Med. Press and Circ.*): In its normal condition is found in digestive tract of man and animals from mouth to the anus. It exceeds all other species of microbes in the gastro-intestinal tube.

It can thus readily be seen how the skin and mucous membrane of the genital organs can be contaminated by this microbe, and from thence the dejecta, clothing, food, plants, ground and water affected; even the new-born infant being easily infected.

The presence of this microbe in the intestine is certainly hurtful; they take up alimentation destined for the individual; determine the formation of odorous matter, gases and toxines. When there is any lesion of the intestinal epithelium, liver or kidneys, they produce symptoms of poisoning. This poisoning can be divided

into three degrees of intensity: (1) characterized by mydriasis, cutaneous anesthesia, muscular weakness and coma; (2) convulsions, nystagmus, hyperexcitability of skin and organs of sense; (3) violent tetanic convulsions and death. This has been proved experimentally. Autopsy shows congested, ulcerated and even gangrenous intestines. They affect the liver, bladder, ureters, kidneys, testicles, uterus, ovaries, and through the circulation, other organs, especially the heart. The particular field of operation is in the abdomen, when acute and chronic diarrhea, cholera nostras, infantile cholera, dysentery have been attributed to this microbe, and it also enters into a number of symptoms in other diseases, especially typhoid fever, and is a factor in biliary calculi, metritis salpingitis and cystitis. After death it seizes upon the whole body and becomes the principle agent in decomposition of the body.

*Actinomyces*—Lathrope (*Boston M. & S. Jour.*, March, 1895): This disease is being more frequently diagnosed. It is most probable that actinomyces is caused by one of the higher order of bacteria resembling cladothrix, and that in nature its habitat is to be found on certain cereals. The germ is contagious and specific, has been isolated, cultivated and inoculated from man to beast; thrives best when removed from oxygen.

Clinically, cases recorded are chiefly from Germany, Austria and Russia. Three times as many males as females. Parts affected: Head gives 60 %, abdomen 20 %, and the skin and lungs the remainder. Facility of diagnosis depends upon part affected. The fungus does not appear to cause suppuration itself, but that this occurs when other germs are introduced. In the internal organs it appears to seek the surface; thus in the lungs, the mediastinum is the favorite seat, and external manifestations occur on either side of sternum. The colonies do not spread by the lymph-channels, but by contact and

the blood system; when the lymph channels are affected it is through septic infection. In all cases of chronic suppuration the fungus should be sought for.

Prophylaxis should embrace (1) Legislation to stamp out bovine actinomyces. (2) Avoidance of uncooked cereals. (3) Proper care of teeth and mouth. (4) Precaution during care of existing cases. Curative treatment embraces *internal medication*; iodide of potassium is reported to have a specific value. *External medication* (the somewhat anerobic nature of the organism would give us hints): Peroxid of hydrogen, corrosive sublimate, carbolic acid, nitrate of silver and iodoform gauze have been useful. *Operative procedures*: Follow the general principles applicable to septic infection, and the removal of small isolated foci.

*Leptothrix buccalis*—Wright (*N. Y. Med. Jour.*, July 6, 1895) and Barker (*J. H. H. Bulletin*, May and June, 1895):

Klebs says: "We must classify them with the lime-building algæ, and seek them nearest related forms outside of the human body, among the lime algæ which occur in sweet and salt water and possess special importance for certain geological formations." *Leptothrix buccalis* has not been cultivated outside of the human body. It is found in the mouth, nose and pharynx, stone in the bladder and gangrenous pulmonary cavities. Its chief clinical importance is in a certain class of chronic pharyngitis and tonsillitis, usually discovered by the patient as a membrane, somewhere in appearance between a lacunar tonsillitis and a pseudo-diphtheritic exudate, but having the clinical history of either, and chiefly characterized by a dryness, rawness and tickling sensation, which is chronic in its nature and stubborn in yielding to treatment, and has been, in one case at least, mistaken for tuberculous pharyngitis. Fraenkel has showed this disease due to the *Leptothrix buccalis* present in the membrane, crypts and acini of the glands of the mucous membrane. It is a fairly common affec-

tion, often giving rise to no symptoms. The diagnosis can be made microscopically, by preparing sections from pieces of the tissue. The starch reaction with Lugol's solution will stain the leptothrix masses bluish-black. There appears to be a certain systemic condition which produces a favorable soil for the growth of the fungus, and as long as that condition persists the growth continues, no matter what local applications we make. Alkaline washes, and applications of solution of iodine have yielded as good results as any form of treatment.

*Diastase and an Alcoholic Ferment from Fungi.*—(*London Lancet*, May 25th, 1895):

These are the results of experiments conducted by a Japanese chemist, Jokichi, Takamino, at Glasgow University and Tokyo University, with the idea of improving the methods of brewing and distilling. This was discovered in the fungus of the species *Eurotium orisae*, a mycelium of the aspergillus family. The best and most practical medium used for growing the seed of this microscopic fungi is common hydrolized wheat-bran; when grown for commercial purposes it is not fertilized; the commercial product is known as *Toka Koji*. On examining this with a microscope the bran flakes show, after being thirty-six to forty hours in a moist temperature of 80° F., that the roots which spread all over the surface of the bran are literally covered with minute crystals of pure diastase. At the top of the mycelium a small head is formed, in which the seed and pollen are present; these unripe spores give rise to the ferment or agent which converts sugars into alcohol. This purified diastasic product has become an article among the newer remedies, and it is claimed for it, that it will convert one hundred times its weight of starch, at blood heat, in less than thirty minutes. If this is confirmed by experience, and as the process of obtaining the diastase is not an expensive one, it will be a valuable addition to our materia medica, when diastase is indicated—as our present malt extracts are not satisfactory.

#### PATHOLOGY.

*Fixation of Nerve-fibers by Formalin.*—Kitchell (*N. Y. Med. Journal*, July 20, 1895): With the exception of osmic acid, the older fixatives do not preserve without considerable shrinking of the axis cylinder of the nerve-fibers. With from twenty-five to one hundred per cent. formalin, the axis cylinder remains entirely, or almost entirely, unshrunk. Fibers fixed in this manner stain well with acid fuchsin, eosin, and other aniline dyes, probably best with Gage's hematoxylin; the connective tissue is highly stained, the unshrunk axis cylinder only slightly. The neuro-keratin network is much more distinct and regular when fixed in this manner than in Müller's fluid, being stained black with Weigert's hematoxylin, or iron-alum hematoxylin. Osmic acid stains it a faint brown. When using Weigert's method, in formalin hardened specimens, the reducing fluid should be diluted from five to ten times with water, or the decolorization will be too rapid and uneven.

*Cause of Cancer*—Braithwaite (*London Lancet*, June 29, 1895.): Dr. Braithwaite confidently believes he has discovered the cause of cancer and sarcoma in a spore bearing mycelium which he illustrates in the above descriptive paper. What practical results will accrue from this discovery he enumerates as follows:—(1) The enemy is subtle, penetrating, and very indestructible. He advises open treatment of wound after removal, with dressings of glycerin, carbolic acid, and bichloride mercury, the glycerin penetrating the tissues and carrying with it the antiseptics held in solution. (2.) As the fungus enters the breast—through the milk duct orifices, after child-nursing is past, he advises the closure of these orifices either by simple surgical procedure or fine electro-cautery. (3) Absolute cleanliness of the reproductive apparatus even to the mosaic rite. (4) Spon masses, the formation of which depends upon moisture, would lead us to avoid low-lying, moist soil as burying places for cancer dying patients, to deep interment, or better still, cremation. (5) As fungi attack only effete material, we should not allow ourselves to rust out, but keep our bodies in as highly defensive state as possible by living hygienically.

Wyoming, Pa.

## MODERN TREATMENT OF DISEASES OF THE STOMACH.\*

By JOHN FORD BARBOUR, M. D., Louisville, Ky.

It is now about ten years since Ewald introduced the use of the soft rubber stomach-tube, and this simple invention, in connection with the chemical examination of the gastric contents, has revolutionized our methods of diagnosis and treatment of diseases of the stomach. One might as well try to treat the eye without an ophthalmoscope, the larynx without a laryngoscope, the uterus without a speculum, or the urethra without an endoscope, as to attempt to cope with gastric affections without a stomach-tube.

American physicians have been singularly slow to adopt these improved methods of diagnosis and therapy. This is to be explained on several grounds. Many have the idea that there is something ultra-scientific about this plan of procedure, that it is not practical, that it smacks of the laboratory. Others imagine that it requires the services of an expert chemist to analyze the gastric contents. Both of these ideas are erroneous. The method is eminently practical, and the results obtained are amongst the most brilliant in medicine. The amount of chemical skill needed is no more than in analysis of the urine.

But the most important reason for the neglect of this matter is the amazing dearth of literature upon the subject in English. While Ewald, Boaz and Von Leube, in Germany, and Mathieu, in Paris, have been making magnificent contributions to our knowledge of the subject, American and English physicians have failed to keep track of progress in this direction, and have contributed nothing of value. But now that Ewald's classical treatise has been translated into English, and also the manual by Mathieu, it is to

be hoped that more of our physicians will study this beautiful branch of therapeutics.

I cannot, of course, in the brief limits of a summer paper enter into details; I must content myself with a few general remarks before proceeding to the report of some cases.

It is remarkable how rarely pepsin is indicated, although the vast body of the profession seems to consider it as well-nigh a specific for every form of dyspepsia. In about 95 per cent. of cases it is hydrochloric acid that is needed instead of pepsin, and Ewald has taught us to administer it in large and repeated doses. There is nothing equal to it for arresting fermentative changes in the stomach and intestines.

It is singular how few cases of so-called functional or nervous dyspepsia there are. In nearly, if not quite all, of them, a careful examination reveals the presence of a chronic gastric catarrh with impaired motility and incipient dilatation of the organ,

As regards diet, although idiosyncrasies play a large part here, and it is not possible for a physician to sit down and make out a *menu* for a dyspeptic patient from a table showing the relative digestibility of various forms of food, this does not absolve one from the duty of carefully studying this important and much neglected branch of medicine. The physician who essays to treat gastric diseases ought even to be something of an epicure, and to have some ideas about the proper preparation of food.\*

Milk is usually spoken of as the ideal food, but certainly as far as my experience goes, when given pure it nearly invariably disagrees. So far from being a fluid food, it forms in the stomach a tough, leathery coagulum of about the consistency of a boarding-house fried beefsteak. Another serious objection to its use is the difficulty of getting the patient to take enough of it.

\* Read before the Louisville Clinical Society, and contributed exclusively to THE AMERICAN THERAPIST.

\* It will prove interesting to the reader to here refer to Dr Aulde's articles: Diet for Health, AMERICAN THERAPIST, Oct., 1894, and Diet for Disease, *Ibid.*, May, 1895.

Ewald says that an absolute milk diet is about equivalent to a prolonged hunger-cure, since the living ration of it is 4600 c.c. or nearly ten pints.

Potatoes and bread form the best culture media possible for sixteen different varieties of micro-organisms, which are said normally to be present in the stomach. These forms of food are the last which should be allowed to the dyspeptic patient.

Hydrotherapy, electricity and gymnastics play an indispensable role in the management of digestive disorders, and it is to the neglect of these potent agents that many a failure is to be attributed. It is not sufficient for the physician to give his patient the general advice to take exercise; he must prescribe the exact form of exercise. We must recognize a stasis of the abdominal and pelvic circulation as the fundamental condition underlying many cases of imperfect digestion, and this stasis can be influenced to a very slight extent by internal medication, but yields very readily to dynamic agents.

In this department of medicine, more perhaps than in any other, it is necessary to individualize. There is a certain sort of physicians, who may be called the stony-ground-bearers, because they are ready to adopt any new mode of treatment without in the least understanding its *modus operandi* or its range of applicability; they took up stomach washing with a vengeance, and it soon became a fad; everybody that came along was washed out, entirely regardless of the condition of his stomach, and this valuable therapeutic measure fell into unmerited disrepute.

Disturbances of digestion are of the greatest consequence when considered in their relation to other affections. Fenwick claims to have found pre-tubercular dyspepsia in 33 per cent. of cases of phthisis. However this may be, certainly we will all agree that the stomach is our stronghold sure in the treatment of this affection.

Nearly all cases of gastric ulcer are preceded by chronic gastric catarrh.

Equally important is the role played by the stomach in anemia and chlorosis, in diseases of the liver, of the kidneys, in rheumatism and gout. In disease of the heart and of the central nervous system the condition of the gastric and intestinal digestion is of prime importance in our efforts to improve the nutrition of these organs.

I wish, now in conclusion, to report a few cases as showing the results which may be obtained by a rational modern therapy.

Case I.—N. S., age twenty-two, was a seven months child and had always been puny. She had had slight digestive disturbances for several years. The night of the Power House fire she was badly scared and began to lose ground rapidly after this. She had taken every form of digestive ferment, prepared food and stomach tonic known to art, and her stomach had been washed for several months by a "stony-grounder." At the time she was sent to me by Dr. Barbour, of the City Hospital, she weighed only sixty pounds, her skin looked like parchment and was drawn tightly over the temples. Her diet consisted of crackers and hot water; she was losing flesh steadily; her bowels were very constipated. Examination of the gastric contents showed the presence of about one-tenth of one per cent of free hydrochloric acid and great impairment of motility. The stomach, when distended with a few glasses of vichy, extended four finger-breadths below the navel. Heart, lungs and kidneys sound; circulation feeble.

She was kept on kumyss for a month (it is claimed that carbonic acid gas stimulates peristalsis); the bowels were regulated by the use of Carlsbad salt, which has also the property of accelerating the abdominal circulation; the stomach washing was continued, using cold water instead of hot; she had abdominal massage and a sitz-bath every day, and exercise of the abdominal muscles. The only drug used, except the Carlsbad salt, was strychnine in full doses.

At the end the month she was allowed to eat sweet-breads and calf-brains, and hydrochloric acid was administered in repeated doses after meals.

Under this plan of treatment, she gained twenty-six pounds in three months, and has continued well ever since.

Case II.—Miss M. H., age twenty-three, had had two hemorrhages from the stomach, a considerable amount of bright arterial blood being lost each time. She was very pale and weak, and had lost about thirty pounds in weight. There was severe pain after eating, and localized tenderness over a spot the size of half a dollar in the epigastrium. The case was plainly one of gastric ulcer.

After trying various remedies with very little success, I finally tried papain. To my surprise the pain entirely disappeared and after a few weeks no symptoms of the ulcer remained. The young lady is now the picture of health.

Case III.—E. M., a gambler by profession, age fifty-four, had been in bad health for about three years. His physicians had finally advised his wife to give him all the morphine he wanted and let him die.

When I saw him, I found marked hypertrophy of the heart with atheroma of the arteries. There was diminution in the amount of hydrochloric acid in the gastric juice and feeble propulsive power on the part of the stomach, both of which were largely due to the morphine he took. He had been given large doses of digitalis, which no doubt increased his cardiac trouble by still further narrowing the calibre of the arteries.

The morphine was withdrawn, he was placed upon a simple diet and his digestion was assisted, and nitroglycerin was given with a view to relieving the strain upon his heart. Under this treatment he made wonderful progress, gaining thirty pounds in three months, and getting on his feet again; but his love of gaming proved too much for him—he put too severe a strain upon his heart and died of lingering heart failure.

This case is at least interesting as showing what results can be obtained in apparently hopeless cases by attention to the digestion.

Case IV.—C. B., age fifty-nine, had suffered from dyspepsia for twenty years; he had been treated by many physicians and was none the better but rather the worse. He was losing about two pounds a week, his tongue was heavily coated, his complexion sallow, conjunctivae yellow, bowels constipated. He was in very low spirits and had violent cramping pains coming on three or four hours after meals, and of sufficient severity to prevent his sleeping. He was given a test-meal, and the gastric contents were withdrawn at nine o'clock p. m. Analysis showed hardly a trace of hydrochloric acid. Microscopical examination revealed the presence of some fish which he had eaten that morning for breakfast.

Under the use of papain, dermatol, strychnine, hydrochloric acid, faradization and massage of the abdomen, regulated diet, and stomach-washing, he gained fifteen pounds in five weeks, his skin and his spirits cleared up and he stated that he had never felt better in his life. He has had a few relapses since, owing to errors in diet or neglect of treatment.

Case V.—K. F., age forty-five. This woman went out to Manitoba about two years ago and lived on a ranch for six months where she had nothing to eat but canned goods. As a consequence she developed scurvy and fell off from 140 pounds down to 90.

When she came under my treatment, all power of digestion and assimilation seemed gone. She got worse and worse, until at last she took to her bed, weighing hardly more than fifty pounds. She looked like a patient in the last stages of cancer; there were twelve to fifteen movements a day of the bowels, the actions having a very sour odor and being as white as clay; everything she ate disagreed with her, and no medicine seemed to do her the slightest good;

she passed two ounces of very dark urine a day. Dr. James Bullitt examined her blood for me and found 3,500,000 red blood-cells where there should have been 5,000,000.

Dr. Bailey and Dr. Mathews saw her with me in consultation, and the case seemed so desperate that they made no suggestions.

As a last resort, with the hope of improving the quality of the blood, I gave her small doses of mercauro and fed her upon bone-marrow. The latter agreed with her perfectly; she improved very rapidly, has nearly regained her former weight inside of three months, and eats whatever she wants.

#### DISCUSSION.

Dr. T. P. Satterwhite: I have had a great many cases of stomach trouble, none, however, quite as extreme as those reported by Dr. Barbour. I have secured the most valuable and permanent results, in fact complete cures were recognized by both the patients and myself, from warm Carlsbad water and milk diet. Nothing else was used in the treatment. The carbonic acid gas seems to produce a very happy effect in "settling" the stomach and promoting digestion. Many of the cases of stomach trouble are due to catarrhal conditions, and Carlsbad water given warm acts better than any other single remedy that I have used.

Dr. I. N. Bloom: As a matter of information, I would like to ask Dr. Barbour the proportion of hydrochloric acid normally present in the stomach, and the significance of free hydrochloric and lactic acids; also some simple tests for these acids. I would further like to hear his method of washing out the stomach, what he uses and what some of the indications are.

Dr. J. F. Barbour: In reply to Dr. Bloom: The normal amount of hydrochloric acid in the stomach is three-tenths of one per cent. There are a number of tests which are used at the present day. One of the simplest is what is known as

the "Congo red" test, and it is not necessary to go to the trouble of making an elaborate quantitative analysis, but by simply comparing standard solutions of hydrochloric acid in water with the reaction which is obtained from a given amount of the withdrawn gastric contents, you can arrive at an approximate result which is sufficiently accurate for all practical purposes. Congo red is not an absolutely reliable test, and it has been replaced almost entirely now by the phloroglucin-vanillin test\* which shows the presence of hydrochloric acid in a very small amount indeed.

Ewald was the first to call attention to the importance of administering hydrochloric acid in large amounts in these cases. Formerly five to ten drops given after meals was supposed to be enough, but Ewald's plan, which the profession to-day recognize as the most effective in checking fermentation, is to give ten drops of dilute hydrochloric acid every hour, giving two and even three doses after each meal. It is given in a very small amount of water, and the patient instructed to take it through a glass tube so as to avoid injury to the teeth. As I remarked in the paper, it seems singular that American physicians have been so slow to adopt this plan of treatment. The reason for it probably is the small amount of literature on the subject accessible to those who read only English. Certainly the English literature is many years behind the times in this respect. Diseases of the stomach are among the most common with which we have to deal, and by means of withdrawing some of the gastric contents with a soft rubber tube and subjecting it to an analysis, we know exactly what we are doing. As some one has very aptly remarked, "What is the use of guessing things, when we can know them." The physician who treats these diseases without analysis of the gastric contents is simply "going it blind".

\* For an opportune explanation of these tests, with directions, see page 57 of this issue.—Ed.

It is very curious to notice how pepsin has been "knocked out" recently in spite of the claims made for it by interested manufacturers. Ewald, who is probably one of the best authorities we have on this subject, says that pepsin is very rarely indicated. In those cases where pepsin is indicated, if hydrochloric acid is present in the normal amount, a very small quantity of pepsin is sufficient to do the work. Of course, we all understand the action of pepsin.

When we consider some of the results reported in my paper—people suffering for twenty years with dyspepsia, and cured in five or six months, the method I have suggested is shown to be eminently practical. The excellent results that can be secured makes it one of the most practical of all methods in this department of therapeutics.

Dr. T. P. Satterwhite: Where you give hydrochloric acid so freely and so frequently, what would you suggest in the way of diet? For instance would not milk and acid cause casein to form in the stomach in such a hard mass as to make it difficult of digestion?

Dr. J. F. Barbour: There is a regular system of dietary laid down by writers on this subject. It is, of course, impossible to go into all the details, as it would take a volume instead of one short paper to give them. Where the patient will take it, where there is dilatation of the stomach, which is quite common in gastric catarrh, where the stomach is not constantly distended with gas, the best diet is kumyss, or a mixture of equal parts of milk and seltzer. The presence of carbonic acid gas acts as a stimulant to peristalsis in these cases. The trouble with an exclusively milk diet is to get the patient to take the amount necessary to support life, which is about equivalent to ten pints a day, according to Ewald. I believe an ordinary glass holds one-half pint, so that this would be nearly twenty glasses of milk per diem,—we cannot get the patient to take that amount.

In the case of chronic gastric catarrh, it is my custom to give them for a few days an exclusive diet of kumyss, then the following order is observed in the dietary: Of all forms of solid food, sweet-breads when properly cooked, simply slightly boiled, and calf-brains prepared in the same way, are the easiest to digest; it is very seldom that they disagree with the patient. After this comes the white meat of fowls. I do not know what reason there is for it, but it is undoubtedly a well-established clinical fact that the white meat of chicken or squab will agree with the patient when the dark meat will make him very sick. Following this, I think we should give soft boiled eggs, although they are not so easily digested as ordinarily supposed. The yelk is richer in fats than the white, and I think is more easily digested when the egg is hard-boiled. Fish is also excellent, and I would advise this after eggs.

The hardest thing in treating these patients is to find something in the way of bread that they can take. I have found that corn bread agrees with them much better than white or light bread, and corn bread is the only form which they should be allowed to take hot. Any kind of wheat bread will certainly disagree with them.

The best and in fact the only form of wheat bread that I have found that agrees with these patients is the German zwieback, which is very easy of digestion. With regard to vegetables, asparagus, cauliflower, boiled onions, lettuce with French dressing—oil and vinegar—will nearly always agree with patients, whereas potatoes will disagree almost invariably. Potatoe seems to be the best culture medium for germs in the stomach.

Another advantage in the use of the stomach tube is this: If you are in doubt as to whether the patient can digest a certain form of food, allow him to eat some of it and at the end of two hours insert the stomach tube and withdraw some of gastric contents, and its appearance will



indicate very readily whether the food has agreed with him or not.

In washing out the stomach, there are some who advocate the use of hot water, and others who prefer cold. I have found that cold water is much better. The action of cold water seems to stimulate the digestive organs and tone up the stomach very much in the same way that we use the cold bath externally in hydrotherapy. My plan is to first wash out the stomach with cold water, then afterward with a strong solution of bicarbonate of soda.

Dr. T. P. Satterwhite: My experience with kumyss is that it is very disagreeable to the patient. I have had much better results from the use of buttermilk.

Dr. J. F. Barbour: It depends a great deal upon the idiosyncrasy of the patient. Some people can digest buttermilk very well, but it is a hard matter to get them to take any of the milk diets for any length of time; sweet-breads, calf-brains, etc., are just about as digestible, so I very rarely keep them on an absolutely milk diet for any great length of time. In addition to this there are various preparations of meat, one of the simplest of them being the so-called Liebig's cold soup, which is prepared by digesting half a pound of lean beef in a pint of water, adding a teaspoonful of salt and a few drops of pure hydrochloric acid. By keeping this mixture at about the temperature of the stomach for four hours it turns to a beautiful bright wine-red color and is ready for use. The meat is then converted into peptones. This is by far the most valuable meat extract that I have found, and usually agrees well with the patient. The meat juices, beef teas, etc., have been shown by chemical analysis to be about equivalent to so much urine. Practically, what they contain is urates. Their nutritive value is practically *nil*.

Dr. J. M. Krim: What is your experience with lactic acid? Do you find lactic acid in the stomach, for instance, in cases of cancer?

Dr. J. F. Barbour: The entire absence of free hydrochloric acid has always been regarded as one of the symptoms of cancer of the stomach. It is a very much disputed point with the authorities, but lactic acid is supposed to be present in the stomach for a certain period during digestion. I have found lactic acid present in the withdrawn gastric contents on two or three occasions, but there was always disease of the stomach—chronic gastric catarrh.

Dr. I. N. Bloom: Do you not find that the gastric contents are often alkaline? Where patients take bicarbonate of soda and bicarbonate of potassium is it not supposed there is produced a hyperacidity of the stomach?

Dr. J. F. Barbour: In all cases I have examined I have found a diminution of hydrochloric acid much oftener than hyperacidity. In those cases where there is a diminution of acid, it has been my practice to administer hydrochloric acid after meals; when there is an excess of acid the administration of alkalies after meals would neutralize it. Alkalies before meals are useful in loosening the mucus that may be in the stomach. I always wash out the stomach with cold water, followed by strong solution of bicarbonate of soda before the chief meal of the day, which thoroughly clears out the mucus. This is an important feature, especially in cases of chronic gastric catarrh.

ANTIPYRIN FOR SUMMER DIARRHEA.—The *Union pharmaceut.* publishes the fact that Dr. Rosseau employs constantly and with eminent satisfaction, for diarrhea in children, the following mixture:

R Antipyrin ..... 0.5  
Sirup. simpl.  
Aq. dest. .... ss 50.0

M. S. A teaspoonful every two hours, after drinking.

We learn on inquiry, that some of our readers have resorted to the same agent with good results, and hence we deem the notice worthy of mention here.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
1338 WALNUT ST., PHILADELPHIA, PA.

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## Editorial.

### THE INDEX MEDICUS.

Some months ago, when the discontinuance of the publication of the *Index Medicus* was only intimated, this journal offered its annual subscription of ten dollars towards its re-habilitation. This subscription was tendered in the belief that other publications would gladly adopt the same plan, and that out of the two hundred medical journals now published in this country, at least half would come forward with a like subscription and thus settle at once the question of continuing the publication of this most important work. So far, not more than two or three other medical publications have thought fit to imitate our example, and from present appearances, if the publication is resuscitated, it will be through the instrumentality of private subscriptions. Now, Gentlemen, with all due respect to your positions and your reputations, do you not think this is a grave error? Would it not be the very best thing you could do to subscribe the ten dollars, all of you, and thus insure the paltry sum which is said to be required to resurrect this magnificent record of American medicine?

The writer appeals to his brother editors

to come forward with their subscriptions at once, so that no further delay shall be caused, nor the reputation of American physicians suffer through their failure to contribute their proper quota to the work in hand. All subscriptions should be sent direct to Mr. GEORGE S. DAVIS, Detroit, Michigan, who will acknowledge their receipt, and in case a sufficient sum is not forthcoming, they will be duly returned. Gentlemen: An emergency exists. Please give the matter your prompt and favorable attention.

### ASTRINGENTS IN ENTERIC DISEASES.

We desire at this time to emphasize the necessity for nice discrimination in the administration of astringents in enteric disorders, but it may be ten years ere this necessity is fully appreciated. It is now nearly ten years since the writer first began to write and teach regarding the serious objections to the use of poultices, although only within the past year has the truth dawned upon the medical profession—and even here, it has only penetrated the mental make-up of the professional men engaged in surgical practice. Referring to the subject in hand, the reader is earnestly requested to study the contribution of Dr. PEYSER, appearing in this issue of our journal, in which it is developed that astringents in enteric disorders may accomplish just the opposite of what they are intended. The difficulty lies in determining the dose—large doses increasing the lumen of the vessels—small doses, on the other hand, having the opposite effect. This being the case, we might ask—but without any hope that some one will come forward and acknowledge the corn—how many cases of this class have suffered from the injudicious employment of large doses of astringent remedies? Now, this is a most important question; so much so that those who are accustomed to adopt the usual routine ought to stop and consider whether or not

they are doing for their patients the very best that can be done in the class of disorders referred to. Those who practice empirically will not be influenced by physiological investigation; but there are besides them thousands who claim to be guided by the results of physiological investigation. Let these come forward and record their testimony.

### *THE EFFECT OF COLD BATHS.*

The marked improvement in the treatment of typhoid fever and pneumonia by the employment of cold baths ought to attract more attention from the general practitioner. Doubtless, the published reports would have more effect, were the contributors to undertake a rational explanation of the *modus operandi* by which these great benefits are secured. It is scarcely sufficient in these latter days of thorough investigation to simply state that a remedy or method has accomplished such and such results. The better class of practitioners want to know why these results have been obtained, and how it is possible that such favorable reports can be presented from adopting a routine that apparently has no real scientific foundation. That is, it has no foundation, in their opinion, because it does not involve the administration of drugs.

The theory of the cold bath treatment of typhoid fever and pneumonia has not yet been fully demonstrated, but the good effects cannot be denied. We, therefore, commend to the attention of our readers the reference to this subject in the present number, by Dr. PEYSER, and believe it will well repay careful perusal and study. In the opinion of the writer, the benefits arising from cold baths are due largely to the fact that these applications institute an artificial leucocytosis, and if we can manage to maintain nutrition during the current illness, the effect upon the disease will be most favorable. Let us see if we cannot inject this physiological idea into other methods of treatment, and thus lessen the demand for drugs?

### *SANITARY CLIMATOLOGY.*

The great benefits accruing from the Weather Bureau Service of this county are as yet but imperfectly understood, but in the course of time, undoubtedly, the vast advantages arising from the present work will be duly appreciated. In this connection should be noted a recent innovation which promises to reflect credit upon the present efficient Secretary of the Interior, Mr. J. STERLING MORTON, who has instituted a department of sanitary climatology. The object of this must be at once apparent. While the present system protects the farmer and the mariner from loss, owing to the early announcement of approaching storms a medical expert in connection with the service will afford the physicians and the public information regarding the approach of disease of various kinds. In this manner, we shall shortly be able to estimate with some degree of accuracy the probable effects of atmospheric changes and violent storms upon the health of the community, by studying these reports and calculating their force by the number of cases of illness and deaths resulting under certain changes taking place at different seasons of the year.

Few observing persons have failed to notice the preponderance of crime during the heated period, but under the present system it is not beyond the range of possibilities that sanitary climatology will enable us to foretell, at least in part, the effects which great heat will produce among the criminal classes. The vast importance of the plan outlined can only be hinted at, but when put into working order, it will demand on the part of the clinician that remedies adapted to climatological variations shall be discovered.

### *SUMMER RESORT DISEASES.*

That the sanitary condition of summer resorts has been materially improved goes without question, but notwithstanding this, there will usually be found persons returning home from their summer vaca-

tion who have symptoms of debility, brought about by causes which are not apparent. The season is now approaching when physicians will be brought face to face with this class of cases, and it behooves them to be on the outlook for the mephitic typhoid symptoms. There is reason to believe that many persons who spend their summer vacation away from home indulge themselves in various ways which they would consider risky, were they at their own homes. Dissipation, unusual exertion, indiscretions in eating and drinking, and not infrequently over-exhaustion from prolonged and repeated bathing will produce a debilitated condition of the system which precedes an attack of typhoid fever.

The object of these remarks will be attained should they create a disposition on the part of the profession to make inquiry as to the sanitary conditions of the resorts from whence their sick patients come, because the fact is patent that there are hundreds of places conveniently near all the large cities where the sanitary conditions are unexceptional. It should be their duty, therefore, as well as a pleasure, to advise their patrons to avoid those places which experience has shown to be productive of illness, as it is only by such efforts that we can hope to force improvements in this direction.

**MODERN TREATMENT OF DISEASES OF THE STOMACH.**—We publish in this issue an article under above title, and elsewhere reprint an editorial from the *Philadelphia Polyclinic*, giving explicit directions for the application of electricity in disorders of the stomach, and a paper by Dr. MAX EINHORN, detailing methods for examining stomach contents. These articles fit together well, and if the reader will also look up the editor's contributions on "Diet for Health," in our October, 1894, issue, and "Diet for Disease," in our May, 1895, issue, a careful study of the entire matter must enable him to acquire a comprehensive view of the subject with practical suggestions for utilization at early and frequent opportunities.

## Recent Medicaments.

**ENTEROL** is announced by Dr. Kade, of Berlin, as a physiological antiseptic. No particulars as to identity, composition, or application are available as yet.

**RHINALGIN** is the trivial name invented by an Italian practitioner for a suppository of cocoa oil, alumnol, menthol and valerian, employed successfully in catarrh.

**RUBROL** is spoken of as a new antiseptic, recommended for treatment of gonorrhea. It is simply a mixture of boracic acid, thymol and a coal-tar derivative (*Pharm. Ztg.*, Aug. 7, 1895), the latter probably acetanilid.

**ADHAESOL** is offered in France as a substitute for Steresol, an antiseptic healing varnish; it is composed of 350 parts gum copal, 30 parts benzoës, 30 parts balsam tolu, 20 parts oil thyme, 3 parts alpha-naphthol and 1000 parts ether.

**THE PROMOTERS** of a German erysipelas serum for cancer treatment have adopted the proprietary name *Anticancerin* for their product. Drs. Emmerich and Scholl could have saved themselves this trouble; clinical reports, including the records of their own tests, show that their serum possesses no special value,—and, anyway, we will not need their serum in this country, as we have long had it available from domestic laboratories.

**GALLICIN**, or methyl-ether of gallic acid,  $C_6H_3(COOCH_3)(OH)_3$ , is produced by heating together a gallic or tannic acid solution with methylic alcohol, hydrochloric acid, gas or concentrated sulfuric acid. It is soluble in hot water, in alcohol and in ether. Introduced by C. Mellinger (*Corr.-Blatt f. Schweiz. Aerzte*), and recommended for treatment of diseases of the eye, notably good results having followed its application—dusted into the eye with a brush—in cases of catarrhal conjunctivitis.

**APOLYSIN** and **CITROPHEN** are two new compounds of phenetidin, hence closely allied to phenacetin, lactophenin, phenocoll, etc. Citrophen is composed of 3 parts phenetidin and 1 part citric acid in molecular union, and likewise apolysin contains equal parts, or 1 to 2, of citric acid and phenetidin. Apolysin is most readily soluble of the different compounds, dissolving in 55 parts cold water and in equal volume of warm water; it is furnished in the form of salts of sodium, lithium, magnesium and other metals. The daily dose is 0.5 to 1.5 gm., with maximum daily dose of 6 gm.; good results have been noted in cases of croupous pneumonia, scarlatina, influenza, neuralgias, etc. The dosage of citrophen is the same, and its application is indicated by its reputed superior actipyretic, analgesic, sedative and anti-rheumatic properties.

**AIROL** seems to be cut out for a successful substitute for iodoform; it is an iodine combination with bismuth subgallate, thus affording the antiseptic property lacking in the simple bismuth product. Airol occurs in voluminous powder form, four times lighter than iodoform (which makes its use correspondingly economical); it is odorless, non-toxic, and not the least irritating. Airol has received considerable attention since its recent introduction, and has been tested, experimented with, and favorably reported on by a number of competent authorities. It is most conveniently employed as a dusting powder, covering the surface of a wound evenly and penetrating into recesses; it dries up a surface rapidly, without irritation, promotes granulation, and acts equal to iodoform on suppurations. It has also been used as 10 per cent. emulsion (with water and glycerin).

We suggest that the product can be readily prepared by pharmaceutical chemists, and that it be called iodo-bismuth subgallate—to forestall proprietary assumption.

## Current Literature.

**ELECTRIC TREATMENT OF FUNCTIONAL DISORDERS OF THE STOMACH.**—Editorial in *Phila. Polyclinic*, Aug. 10, 1895:

In the treatment of functional disorders of the digestive apparatus, and especially of the stomach, electricity has definite but limited application. It may be used to stimulate the motility and the secretion of the stomach, or the motility of the intestines. The application may be made with both electrodes applied to the surface of the body, or with one electrode applied to the interior of the stomach. For the latter purpose the most suitable instrument is that devised by Dr. Max Einhorn, of New York. The metallic or carbon electrode is enclosed in a small perforated capsule of hard rubber, and the conducting wire is incased first in silk, and then in a soft rubber tube. The capsule is not as large as an ordinary grape, and can be swallowed without any inconvenience. Before its introduction the patient should drink a glass or two of water, and the connection is established by means of the water which enters the perforations of the capsule. The current is then diffused through the contained water, over the walls of the stomach. The application should be made either when the patient is fasting or at least three hours after a meal consisting of liquids, or semi-liquid diet. Some physicians prefer to wash the stomach immediately before applying electricity to the interior, and this is a very good plan. Galvanism or faradism may be employed. As in other applications of electricity to therapeutics, we prefer to regulate the strength of the current in accordance with the subjective and objective effects produced, rather than by the milliampéremeter. In cases of deficient muscular action the faradic current is preferable, one electrode being Einhorn's capsule, already described, the other moved from point to point over the epigastrium. In cases of deficient secretion we prefer galvanism, the gastric electrode

being made the cathode. The external electrode, if applied over the abdomen, should be a large one. We generally use one of Morton's perforated-brass and spunk electrodes, 6 x 4 inches in size. Sometimes this is applied over the epigastrium, and sometimes over the umbilical region. Sometimes a small electrode is used in the back, over the vertebral column, at about the dorso-lumbar junction. When it is desired to act upon the intestines, both electrodes may be applied over the abdomen, or one over the lumbar spine, and one over the abdomen; or one in the rectum and one over the abdomen. A large electrode and a small electrode should usually be employed; the large one being always placed over the abdomen, the other as stated, either in the epigastrium, over the lumbar spine, or in the rectum. In the rectum, a cylindrical electrode, well wrapped with cotton, sponge, or spunk, should be used. When the abdominal application is labile, a small electrode should be employed and moved in the direction of the colon, from the right iliac fossa, up, across to the left and down. Faradism or galvanism may be employed according to the effect desired. When this is meant to be gently stimulating, galvanism is preferable; when the object is to excite strong muscular contractions, faradism is preferable. Gentle succussion of the abdominal contents may be effected by placing the anode upon the epigastrium, the cathode below the umbilicus, and using a rapidly interrupted, alternating galvanic current. This is often of considerable advantage in cases of costiveness, in which medication is not desirable or effective. Given from three to four hours after meals, it seems to promote absorption from the intestines, and thus to facilitate digestion and assimilation.

Electric applications to the stomach or intestine may be made daily at first, and, as improvement takes place, the intervals between the successive applications should be lengthened. The duration of a sitting should never exceed ten minutes, and

from three to five minutes is usually sufficient. The power employed varies. When the gastric electrode is used, from three to seven cells, and when both electrodes are used externally, from three to ten cells of the ordinary bichromate battery usually answer the purpose. When faradism is employed, a current just sufficient to move the muscles of the patient's thumb is usually enough, but the judgment of the operator must be given scope. Employed with good judgment in suitable cases, these electro-therapeutic measures are among the most efficacious in the treatment of functional disorders of the digestive organs.

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THE NEWER METHODS FOR THE EXAMINATION OF THE STOMACH.—From a lecture delivered at the Post-Graduate Medical School on May 3, 1895, by Dr. Max Einhorn, we take the following, which will serve well to complete the series of articles on this subject in this issue:

The stomach pump was first used by Kussmaul twenty-five years ago in cases of dilatation. The pump used then is not used at the present time. Ten years later the stomach contents were first analyzed by Leube for diagnostic purposes. According to Leube, the stomach should be empty seven hours after a meal. If it is not empty there is catarrhal trouble. In nervous dyspepsia gastric juice is found. Spallanzani analyzed the juice of the stomach one hundred years ago. Hydrochloric acid was found in 1826. These experiments are of physiological interest. Leube first found their use in medicine. Several coloring substances have been used in testing for hydrochloric acid. Laborde first used methyl violet. If to a solution of free acid, methyl violet be added, it will become blue. If to fuchsin acid be added it loses its color; congo red becomes dark blue or black, and tropæolin, which is yellow, becomes dark red or brown. These coloring substances, particularly methyl violet, were used until eight years ago. Mistakes occurred, as

organic acids in large quantities have the same reaction. Günzburg discovered a test solution that did away with this difficulty. It is:

Phloroglucin..... 2 parts,  
Vanillin ..... 1 part,  
Alcohol.....30 parts.

In a few drops of the stomach contents in a porcelain capsule drop a little of the test solution, mix well, heat over a spirit lamp and it will turn red if hydrochloric acid is present. No organic acid has the same reaction. Lactic acid will not respond to the test.

The patient should be examined at the height of digestion one hour after a small meal, and two or three hours after a large meal. The test breakfast consists of a cup of tea, without milk and sugar, and a roll. The test dinner consists of a plate of soup, a large portion of steak, potatoes and bread. Examine the contents three or four hours after the dinner.

The results obtained from examination after the test breakfast are the most satisfactory. Obtain the stomach contents by introducing a tube into the stomach and by having patient exert a pressure on the stomach by means of his abdominal walls. Do not use vaseline or glycerin on the tube. Warm water is better. When you remove the tube, close the opening and take it out rapidly.

When free hydrochloric acid is found, the quantity may be determined by taking 5 cc. of the filtrate of the stomach's contents, adding to it one drop phenolphthalein, which gives a red color to an alkaline solution and does not change the color if acid is present, and then adding sodium hydrate solution (4 gm. to 1000) drop by drop until the solution gets red and stays so. State how much of this solution it takes to saturate 100 cc. In the filtrate (5 cc.) we have just been testing, it took 3 cc. of sodium hydrate solution, then sixty would be the acidity in this case.

Lactic acid is often found in cancer of the stomach. Take a weak solution of carbolic acid, add to it a drop of chloride

of iron preparation, preferably the sesquichloride, and it will turn blue. This is Uffelmann's solution. To this add lactic acid and it will turn canary yellow. It becomes colorless with HCl, but not yellow.

The biuret for peptones is as follows: Make the filtrate of the stomach's contents alkaline with sodium hydrate, add a one per cent. copper solution, and it will turn reddish or violet if peptones are present.

There are a few important points in obtaining and examining the stomach's contents. If possible, introduce a tube and filter. If you cannot use a tube, as in ulcer of the stomach, use a stomach bucket, which is a little capsule with a string attached. Wet this before introducing it. Introduce it as far back into the pharynx as possible, holding the tongue down with the finger and pushing it down with the other hand. Leave it a few minutes in the stomach. The silk thread must be strong and frequently renewed. There is no resistance when pulling the thread until you came to the cardia. In this way you can find the distance of the cardia from the mouth and judge whether it is closed too tightly or not. When you have it at the introitus oesophagi, have the patient swallow, and it comes out easily. The withdrawn stomach bucket is emptied on a small porcelain dish and then examined:

1. By means of blue litmus paper it can be determined whether the contents are acid, if so the paper turns red.

2. With Congo paper whether there are free acids or only acid salts, the presence of free acids turns Congo paper blue, otherwise the Congo color is not changed.

3. If there are free acids it is necessary to find out whether there is hydrochloric acid present or not. For this purpose test with Gunzburg's solution.

4. The amount of hydrochloric acid or the acidity can be approximately determined by gradually diluting one drop of the contents with water until the above mentioned Gunzburg's reaction for hydrochloric acid begins to disappear in the

diluted fluid. Normally the stomach contents can be diluted to ten times and yet obtain the Gunzburg reaction. In this way cases where we are able to dilute only five times, or even less must be considered as cases of subacidity (too small amount of acidity) and cases where we are able to dilute more than twelve times, as cases of hyperacidity or superacidity (too large amount of acidity). In cases where no acidity whatever is found we shall have to deal with anacidity.

Pepsin and rennet, the two ferments of the stomach, generally accompany each other, and we can conclude by the presence of one that of the other. We prove the presence of the ferments by making the following test for the rennet ferment: two drops of the stomach contents are mixed with about two cc. of milk and kept either in a warm place or in a glass with warm water. The presence of rennet curdles the milk in about ten or twenty minutes. It is characteristic of the rennet ferment to curdle the milk as a whole, forming a solid cake so that the milk will not flow out of the glass.

The chemical analysis of the stomach contents furnishes us valuable hints for the diagnosis and treatment of different stomach affections. The most important points are the following:

1. As to diagnosis: Cancer of the stomach—No hydrochloric acid, lactic acid present, rennet ferment usually absent; the chyme pieces not minute and not much changed. Chronic catarrh of the stomach—HCl slightly present, acidity diminished, large amount of mucus, rennet ferment present (only in very severe cases temporary absence of hydrochloric acid and of the rennet ferment). Atrophy of the mucous membrane of the stomach, or *Achylia gastrica*—HCl equals 0; rennet equals 0. Ulcer of the stomach—HCl plus, acidity usually increased, pepsin and rennet plus.

2. The neuroses of the stomach must be classed: (a) Into such with a normal degree of acidity (Leube's nervous dys-

pepsia). (b) Into such with hyperacidity. (c) Into such with subacidity.

3. As to the treatment: We generally have the indication to administer HCl in all cases of subacidity, and alkalis in the cases of hyperacidity. In reference to dietetics, we give in cases of hyperacidity a more consistent, chiefly albuminous food, whereas in cases of subacidity we can give the patients more of the amylaceous food substances.

LEONARD'S METHOD FOR DETECTING CELL-MOTION.—(W. Moser, M.D., Pathologist to St. Catharine's Hospital, Brooklyn, N. Y., in *Medical Record*): The essentials to this method are: 1, Warm stage; 2, photomicrograph. It has long since been demonstrated that if the white blood-corpuscle be kept at about the temperature of the living body on a warm stage—an essential accessory to the microscope—it will exhibit amœboid motion. And since the discovery of the plasmodium malarie by Laveran, the warm stage has been frequently used to detect the varied movements of this parasite. But only recently has it come into practical use in studying the movements of the protoplasm of the red blood-corpuscle, as well as the varied phases of karyokinesis and karyolysis affecting its contained nucleus. Indeed, when we compare the "rosette-shape" exhibited in karyokinesis with the same shape exhibited as part and parcel of the life history of the plasmodium malarie, the resemblance becomes striking, and the two might be confounded. A close observation of the cells, or other cells in the field, with the presence or absence of pigment ought to render a discrimination quite easy. Leonard studied the amœboid motion of the red blood-corpuscle in blood taken from a case of malaria. He had the cell in the field half an hour, and reproduced by means of the photo-micrograph the different movements which had taken place in the cell. In the same manner he endeavors to show that diapedesis of the red blood-corpuscle is dependent upon an inherent movement of the cell itself. The writer is convinced that this method is an ideal one, and that the observations made, and the care employed in their execution, reflect great credit upon its originator.



## Miscellany.

**DON'T TALK TO THE BABY.**—Mothers should be warned against the dangerous effects of constant prattle with their infants. In the gradual unfolding and growing development of these very sensitive creatures it would be wise to avoid adding to the almost innumerable hinderances that beset the young. The observance of a few simple precautions in the care of infants will, in all probability, protect them from many dangers to which they might otherwise be exposed, and result in permanent injury.—*Annals of Hygiene.*

**WHEN A CHILD SHOULD EAT.**—A child should have nothing whatever from the adult table before a year and a half at the earliest, preferably not until two years. Solid food should not be allowed until after a year, and then it should be bread, gruels, porridge, and possibly an egg; but these should be prepared for it, and given to it by itself, not at the adults' table. To let a child come to the table is only to teach it to beg for things it should not have. Let it be fed before your meals, so that it shall not be tantalized at seeing you eat when it is hungry.—*Annals of Hygiene.*

**ETHER IS PREFERRED,** says the *N. Y. Sun's* reporter of European items of interest, as an anesthetic in Northern countries and chloroform in the South, although ether tends to cause secretions in the air passages and bronchial trouble. One cause is undoubtedly the difficulty of keeping ether in hot climates. But Dr. Lauder Brunton suggests that the general abstention from meat may be another reason for the successful use of chloroform. He is led to this from the increased number of fatalities under chloroform in Edinburgh since the introduction of American and Australian meats, which has made meat eating more common among all classes in Scotland.

**ACETANILID HEALS CHANCROIDS IN FROM ONE TO SEVEN DAYS.**—Dr. Thomas S. K. Morton is reported as saying in the *Philadelphia Polyclinic* that upon "chancroids, the effect of acetanilid is most surprising." He states that all soft venereal sores (chancroids) and inflammations "have uniformly healed in from one to seven days, with a single exception," which one was of a phagedenic nature, and required cauterization with nitric acid before it would heal under the acetanilid. He prescribes a drachm of powdered acetanilid. The patient is to wash several times daily, and then rub in the dry powder. If the sore is beneath the prepuce, leave a quantity of the drug inside, which prevents excoriations by urethral discharges. The drug is entirely wanting in odor.—*Va. Med. Monthly.*

**DR. LAWRIE** of Hyderabad says that there are no parasites in the blood in malaria, and that the Italian investigators have mistaken the nuclei of the white cells in the blood for microbes.—*N. Y. Sun.*

Is this theory or fact? We would like to see Dr. Lawrie's complete statement.

**MARGARINE** has been examined for bacteria and is found to be freer from them than butter. The average in butter was 10,000,000 to 20,000,000 microbes to a gramme; in one extreme case 47,000,000. The average in margarine was 4,000,000 to 6,000,000, and the extreme 11,000,000. Cold reduced the margarine microbes from 6,500,000 to 230,200, while it only killed off one-third of those of butter; moreover no pathogenic bacteria were discovered in the imitation.—*N. Y. Sun.*

**CONSUMPTION CURE BY SERUM.**—The following item, taken from the *N. Y. Sun*, is interesting because of the statement secured by the reporter from Dr. Paul Gibier:

European despatches published yesterday told of the great interest aroused among medical men in Europe by the recent experiments of Prof. Marragliano of the University of Genoa in treating tuberculosis by the use of serum. At the recent Medical Congress at Bordeaux Prof. Marragliano reported that he had treated over eighty cases of tuberculosis by this method, and that, while some of these were still under treatment, it was possible to report distinctly favorable results in three-fourths of all the cases.

In speaking of the statements in regard to Prof. Marragliano's experiments, Dr. Paul Gibier of the New York Pasteur Institute said yesterday:

"There is nothing new in this method of treating tuberculosis. When M. Charles Richet, who may appropriately be styled the father of serum-therapy, began his experiments with this treatment, following the example and methods of Pasteur, one of the first diseases to which he turned his attention was tuberculosis. The experiments begun by him have been carried on since then, both in Paris and also in a modest way on this side of the water. The results of our work thus far, in this as in other malignant diseases, are very encouraging. It is not claimed that the sero-therapeutic method of treatment will cure all forms of the diseases for which it is usually administered, or even all cases of any of these forms. What has been proved is that certain forms of malignant disease readily yield to the sero-therapeutic treatment. There are men in good health to-day who owe their lives to it."

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. IV.

NEW YORK, SEPTEMBER 16th, 1895.

No. 3.

## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATES.*

By SAMUEL S. WALLIAN, A.M., M.D.

(SECOND PAPER.)

When the enthusiast author of *Ramona* penned that crisp rhetorical extravagance, "Climate is fate," she was nearer the scientific truth than she intended to be; nearer, in fact, than any scientist has yet seen fit to express himself.

It is not merely in a figurative sense that climate and civilization are synonymous. It is climate that determines physical, intellectual and moral development, directs human activities, develops genius. In other words, civilization and intellectual progress are possible only by means of favorable climatic environment. Climatic extremes are inhibitory. No great intellects or intellectual efforts emanate from either the tropics or the polar regions. It is the cooking and freezing of men that determines their rank in the matter of racial characteristics, their physical stature, their brain power, their capacity for intellectual progress and moral perception. The Lapp and the Eskimo are not amenable to the social and ethical codes which prevail in cultivated Europe or America. The listless and sun-cooked native of the tropics is equally incapable of intellectual brilliancy or acuteness of moral perception.

It is climate on which depend the temperaments and the range of diseases to

which men are subject. There is ample data from which the medical von Humboldt may construct his chart of *pathozones*, and they would compare favorably as to accuracy with those of the isotherms or of the annual rainfall, of the different portions of the earth's surface. To have been born a Burmese would have involved an auxiliary diet of winged ants and the substitution of masticated tea-leaves for the usual infusion of tea, as indulged in by the balance of the world. On the other hand, to have been born under the shadow of the Arctic circle, or in the land of the midnight sun, would have constituted the opposite misfortune. You would have sogged your gray matter with train-oil or whale-blubber, and would have completed an existence which could hardly be called living. In either case neither science, literature, art, music nor mathematics would have ever known of your existence, save by stray ethnological specimens gathered and preserved in museums.

On second thought, no intelligent reader will take umbrage at this re-statement, novel, if at all, only in its incisiveness of facts which are as old at least as the study of physiology. When we consider how many of the complex elements which contribute to make up the total of that which we call our environment are based directly upon climatic conditions, the apparent exaggeration of the statement disappears. Thought, too, has its freezing and melting points. At a certain temperature it is evidently a solid, and at a certain other degree it is dissipated in mist, or evaporates. The native of Guinea yet remains but a few removes above the chimpanzee, and the lean and imbruted Terra del

Fuegan scarcely outranks the wild beasts on which he preys. The Kamtchatkan manifests no more intelligence or ambition than his climatic environment permits him.

Art congeals under the shadow of icebergs, and helplessly succumbs beneath the rays of the equatorial sun. The climatic hospitality of the temperate zone has evolved all the energy and enterprise—the brain of the world. It is climate that has evoked and necessitated the myriad industries that spur and occupy mankind. It has compelled the construction of habitations, and hence the science of architecture; the felling of forests, subjection of deserts and building of highways, and hence the development of commerce; the designing and production of textile fabrics and instruments of precision, hence the necessity for a system of mathematics, for a supply of skilled labor and the invention of complicated machinery. Hence has followed the evolution of railways, telegraphs, telephones, electric lights, motors, and the thousand-and-one ingenious appliances of convenience and elegance.

Climate is the often unaccredited but nevertheless underlying and really dominant factor in the etiology of most of the fatal forms of disease; hence the necessity for a science of chemistry, of botany, and of the various systems and pseudo-systems of medicine. The expression of these arts and sciences, and the accomplishment of these interchanges necessitates a literature, and thence follow music, painting, and all the other fine arts, as legitimate and indispensable luxuries. In short, all the accomplishments of the race, since time began, have been made possible only through a comparative congeniality of climatic environment.

Notwithstanding all this, the study of climate by the medical profession has barely begun, and broadly universal but probably feasible measures for modifying inequable climates have not yet been seriously considered.

True, the human animal manages to survive under a wide diversity of climates, and measurably adapts itself to violent climatic extremes; but this viability and capacity for adaptation have insuperable drawbacks and definite limitations. In truth, it is quite as essential to be acclimated as to be born. So the lying-in chamber is usually transformed into an annealing oven, and sweltering swaddling clothes have their annual fashions and are always provided in advance, lest the sensitive and shivering newcomer shall "take cold!"

Endemics and most epidemics are strictly climatic and local in their origin, prevalence and virulence.

The natives of Central Africa transported to Wrangel's Land or Siberia would succumb like flies before a hoar frost, and the blubber-sucking Greenlander would wilt like chaff before a blaze, if suddenly carried to the tropics. The diseases prevailing in the valley of the Amazon are unknown on the banks of the St. Lawrence, and *vice versa*. One climate induces languor and mental hebetude, while another stimulates to the highest degree of physical and intellectual activity and ambition.

It certainly follows that the medical world has not yet availed itself of a tithe of the possible resources of climate in the prophylaxis, modification or cure of diseases and disease tendencies.

Helix, California.

### THE DIARRHEAL DISEASES OF CHILDREN. \*

By CHARLES P. KNAPP, M.S., M.D.

The clinical picture presented by cases of gastro-intestinal disease with diarrhea, in children during the summer months, is three-fold.

(1) Cases of gradual onset, with frequent, foul-smelling stools containing undigested food, colicky pains and rumbling

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noises in the abdomen, coated tongue, loss of appetite, slight fever ( $100^{\circ}$  F.) and emaciation—*catarrhal or acute dyspeptic diarrhea*.

(2) Cases of more acute onset, with frequent spinach-like stools, neutral or acid in reaction, vomiting, a painfully distended abdomen, higher fever ( $101^{\circ}$  to  $102^{\circ}$  F.), pallor, wasting, cutaneous anesthesia, mydriasis, muscular weakness, convulsions, and coma—*entero-colitis*.

(3) Cases of sudden onset, with frequent large serous stools alkaline in reaction, vomiting, great thirst, high temperature ( $103^{\circ}$  to  $105^{\circ}$  F.), rapid pulse, scanty urine, nystagmus, hyper-excitability of the skin and organs of sense, collapse or convulsions, often tetanic in character, coma, and death—*cholera infantum*.

A rational and scientific treatment of these cases rests upon their etiology and pathology. I do not intend to deal with the exciting and predisposing or climatic and dietetic causes, or the treatment these causes would suggest; but, taking the three classes of cases above mentioned, and comparing them with a class of cases, of varying degrees of intensity produced in the laboratory, will direct our attention to the treatment suggested by this comparison.

The bacillus coli is the most numerous of the intestinal micro-organisms (I might say, in passing, that the micro-organisms found in the cases above mentioned are usually of the proteous variety), the bacterium lactis aerogenes being the one next in order of frequency to the coli. When toxins of equal virulence of bacillus coli are injected into animals, we have poisoning, producing symptoms of three grades of severity:

(1) Muscular weakness, mydriasis, cutaneous anesthesia and coma.

(2) Convulsions, nystagmus, hyper-excitability of the skin and organs of sense.

(3) Violent tetanic convulsions.

The toxins of this bacillus in less doses than to produce the phases given above, give nearly all the other symptoms enum-

erated in the diseases under discussion. This being true of this micro-organism in the laboratory, it is true also of other micro-organisms; and furthermore, Bouchard, Kellogg, Gilbert and others have proved the same true of this and other micro-organisms in the clinical room. We can deduce from this both a reasonable and scientific indication for treatment.

First, then, we must empty the stomach and intestinal canal of its contents of nutrient material and its colonies of toxin-producers; in mild cases, with small doses of calomel or seltzer salt, and in serious and grave cases, by lavage of the stomach and flushing out of the intestines. It would be better to do this in all cases.

We should nourish the child with that which is not a nutrient media for the further production of bacteria.

We should procure a rigid gastro-intestinal asepsis—giving drugs that will inhibit the growth of the micro-organisms left after the lavage and irrigation. I have found none to serve the purpose better than bismuth salicylate. We should stimulate the gastro-intestinal cells to a more active metabolism, which will prevent the absorption of both bacteria and their toxins. Arsenite of copper, sulpho-carbonate of zinc, acetate of lead, calomel and bichloride of mercury, in very small and frequently repeated doses, will accomplish this.

We should increase the defensive action of the cells of the body, by baths and by change of air, both of which increase leucocytosis, and by giving nuclein, a well proved antitoxin.

As a sedative to the correlative action of the cells through the nervous system, and to sustain the nervous system both against the toxic action of the products of the bacteria and the wear and tear of its own correlative action, we should give strychnine, acetanilid, codeine or even morphine in very small doses.

This is the course of treatment modern bacteriology and pathology point out in this class of diseases, which are toxemias; and our present and coming mothers must be taught a nursery hygiene based upon bacteriology.

Wyoming, Pa.

## SOME OBSERVATIONS ON NUCLEIN THERAPY.\*

By Dr. J. N. BASKETT.

The attention of our profession to-day is centered upon thyroid extracts, anti-toxins, nucleins and other animal substances, and developments along these lines are being watched with scrutinizing care and manifest interest.

The results achieved, thus far, from these substances would seem to indicate the dawn of a new era in therapeutic science.

Nuclein is not a new discovery, but only in recent years has it been studied vigorously with a view to practical application in medicine.

Our physiological chemists have demonstrated it to be a product of cell generation in both the animal and vegetable kingdoms, and have elucidated clearly its chemical structure. They have announced that it is a non-irritant and non-toxic germicide, and that it has a twofold function in the human economy, *viz.*: A physiological function of tissue-building, and a pathological function of an antitoxin. If these announcements are true, its therapeutic range is practically unlimited. It now remains for the practitioner to verify or refute these claims by a thorough and impartial trial of the remedy, and by comparing observations and experiences.

To this end I subjoin a report of a few of the cases in which I have used nuclein.

Case I.—Mr. —, aged forty-six years. Has been for years addicted to the excessive use of alcoholic stimulants. Gives a history of specific trouble twenty years ago. Has had several severe attacks of inflammatory rheumatism, which were treated successfully with salicylates and iodides. For the past few years the rheumatism has assumed more of the chronic type, which he has treated with patent medicines.

I was called to see him October 24th, 1894, and found him suffering from an acute attack of inflammatory rheumatism affecting the elbows, wrists, knees and ankles. He had taken for a week or ten days previously his patent "specific" with the only perceptible effect of causing nausea and vomiting. Temperature was 104° F., pulse 124, respirations 22; tongue dry and coated, breath offensive, no appetite, bowels irregular, constipation alternating with diarrhea, the food passing through the bowels undigested. I gave him small doses of calomel and soda every hour for ten doses, then gave him the salicylates as in former attacks for five days without any decided benefit, except lowering the temperature. I then withheld the salicylates and gave him iodide of potash, pushing it to the degree of tolerance. He improved under this treatment until December 1st, when he grew worse; stomach again rebelled against food and medicines, and the joint trouble became aggravated. Temperature rose to 104.5° F., pulse 140, weak and at times almost imperceptible, respirations irregular and sighing, bowels active, food passing undigested. He began, for the first time, to show evidence of cerebral complication, was very restless, unable to sleep and at times delirious. I discontinued the iodide and gave him another course of calomel and soda, and followed it with strychnine sulphate, malted milk and beef-tea.

The temperature gradually declined after a few days until it ranged from 101.5° to 102.5° F., pulse 150, respirations irregular.

The cerebral symptoms increased until he became quite unconscious; pupils dilated, heart action weak and irregular, extremities cold, mouth and tongue sore, teeth covered with sordes, retention of urine.

We were now unable to give food by the mouth in sufficient quantity, and resorted to rectal feeding. At this juncture he was seen by two of my colleagues, Drs. Kabler and Chowning, for several consecutive days. We all concurred in the

\* Read before the annual meeting of the Missouri State Medical Society, May, 1895.

opinion that the outlook was very unfavorable, and that food, stimulants and tonics were the indications for treatment.

I continued the line of treatment agreed upon for two weeks without any material change in the condition of the patient. I then prescribed nuclein solution one-third minim every three hours, and continued the food and strychnine as before. On the fourth day after the nuclein was begun there was a slight improvement in the pulse and some evidence of better assimilation of food. At the end of one week the pulse had improved perceptibly, he was taking more food by the mouth, was not so delirious and slept more. At the end of two weeks there was a general improvement in his condition, he was eating better, assimilating food better, sleeping better, and was more conscious. Temperature 100° F., pulse 120, respirations 22 and regular, pupils less dilated and responding to light better.

At the end of four weeks his improvement was quite apparent to the family; he was rational, pupils normal, temperature 99° F., pulse 100, respirations 20, sleeping well, bowels regular, appetite good, tongue and mouth greatly improved. The strychnine was discontinued.

I did not see him from the 17th of January until the 1st of March. On the 14th of February he had a return of the rheumatism and irritable stomach, though in milder form, and called Dr. Kabler, who visited him for a few days and added to the treatment the tri-iodides.

When I called the 1st of March he was sitting up, was bright and cheerful and stated that, with the exception of weakness, he felt entirely well. The nuclein was continued until April 1st, when the patient was out and improving every day.

Case II.—Mrs. —, aged thirty-one years. Mother of two children. Has been a sufferer from irregular, scanty and painful menstruation for fifteen years. Has frequent attacks of severe headache and pains in various parts of the body, more pronounced at or near her menstrual

periods, when she is unable to sleep. She has chronic catarrh of the nose and throat, is anemic and nervous, left ovary enlarged and painful; appetite good, bowels constipated.

Had laceration of the cervix in her first confinement, which was repaired fifteen months ago.

She has had good local, dietary, hygienic and tonic treatment without material benefit. Five months ago, I prescribed nuclein solution one-third minim every three hours, continuing the arsenite of strychnine which she had been taking for several months before. After two weeks treatment she was not so nervous and had less pain in the ovary and other parts of the body. In one month she felt much improved; headache not so frequent or severe, pain in the ovary less, and no return of pain in other parts of the body; was not nearly so nervous, sleeping much better, appetite good, and bowels regular. The second menstrual period following the use of the nuclein was more free and not attended with the usual pain and general disturbances.

The medicine has been continued up to date without any especial change in the condition of the patient after the first month's treatment.

Case III.—Mrs. —, aged thirty-five years. Mother of one child. Neurotic family history. Has had nervous prostration with all of its usual accompaniments for fifteen years. Excitement or over-fatigue brings on paroxysms of intense pain in the abdomen, chest and head, followed by profuse sweats and utter prostration. The mucous surfaces are all more or less involved in chronic catarrhal inflammation. Appetite variable, bowels irregular, constipation alternating with diarrhea, menstruation regular and unattended with especial pain. Aside from the pain above mentioned, her greatest suffering is from insomnia. She has had tonics, nervines, massage, electricity, anti-spasmodics and hypnotics indiscriminately, without any permanent good effects.

In December, 1894, I gave her nuclein one-third minim every three hours, which she has taken regularly since. She has gained a few pounds in weight, is some stronger, has more endurance, sleeps better, and does not have so frequent or severe attacks of pain as before.

Case IV.—Mr. —, aged thirty-six years. Has chronic catarrh of the nose and throat. Gives a history of tubercular tendency. Was taken with *la grippe*, March 1st, 1895, which attacked mainly the mucous surfaces of the respiratory tract; had high fever, intense aching, cough, profuse nasal and bronchial secretion, sore throat, tonsils and soft palate swollen and edematous. Gave nuclein  $\frac{3}{4}$  minim every three hours for one day. Then  $\frac{3}{4}$  minim every hour for three days, without appreciable improvement, when other treatment was instituted with satisfactory results.

Case V.—Mrs. —, aged sixty-two years. Tubercular family history. Was called to see her April 13th, 1895. She gave a history of an attack of *la grippe*, in a distant state four weeks previous since when she has been unable to lie down on account of cough. She was very weak, no appetite, coughing almost incessantly, expectoration thick and yellow; temperature 99.5° F., pulse 84, respirations 22, bowels active, urine scanty and high-colored. Examination of chest revealed bi-lateral chronic bronchitis with slight dulness and subcrepitant râles over the upper, posterior aspect of the right lung. She was taking Trommer's extract of malt, which was continued. I gave her in addition, white pine expectorant and small doses of tinct. opii camph., to restrain the excessive action of bowels, and ordered a diet of soups, milk and eggs, of which she partook very sparingly. This treatment was given until the 16th, without apparent improvement, when the expectorant and paregoric were discontinued and she was given nuclein  $\frac{3}{4}$  minim every 2 hours.

April 17th. Condition of the patient about the same. Treatment continued.

April 18th. Temperature normal, pulse 76, respirations 22. Coughing less, but still unable to lie down, dulness over the upper, posterior part of right lung less marked. Subcrepitant râles giving way to large moist râles; bowels regular, appetite improved. Gave one-third minim nuclein every hour.

April 19th. Temperature normal, pulse 72, respirations 20, dulness absent, râles diminishing, more appetite, bowels regular, feels stronger. Treatment continued.

April 20th. Passed a good night in semi-recumbent position for the first time in five weeks. Temperature normal, pulse 72, respirations 20. Coughing less, very little expectoration, few bronchial râles; sitting up, attending to some correspondence, appetite a great deal better, bowels regular, feels stronger.

April 22nd. Temperature, pulse and respirations the same, strength improved, appetite good.

April 24th. Patient has not had any nuclein for forty hours, feels languid, appetite not so good, coughing more and not resting so well, had to sit up as before to sleep. Nuclein was again given in doses of one-third minim every hour.

April 26th. Temperature, pulse and respiration normal, resting well, appetite better, cough improved, gaining strength, was able to walk down stairs. Nuclein continued every hour.

April 30th. Patient up and around most of the time, resting well, eating well, cough practically gone.

May 4th. Patient continues to improve, nuclein given in smaller doses one-fourth minim every hour.

May 7th. Cool, damp weather caused some increase in cough, otherwise patient is improving. Medicine increased to one-third minim every hour.

May 10th. Patient taking daily drives and progressing in every way satisfactorily. Advised the nuclein to be taken for several weeks longer.

Case VI.—Was called April 15th, 1895, to see a child four years of age, who was

convalescing from scarlet fever. On the day before he was playing near an open window through which was coming a cold, damp draught. I found him suffering acute pain in the head, face, ankles and left wrist. The latter was swollen and hot. The cervical glands of the left side were also swollen and painful. Temperature  $102^{\circ}$  F., pulse 120, respirations 30, bowels sluggish, tongue furred, urine free from albumin as it had been throughout the fever. I gave one-tenth grain of calomel every hour until the bowels were moved well, and one-sixth minim nuclein solution every hour for eight doses, then every two hours.

April 16th. Patient more comfortable, swelling in the wrist and glands reduced one-half and joints free from pain. Temperature  $100^{\circ}$  F., pulse 110, respirations 26. No albumin in urine. Has pain in the back when moved, bowels distended. Gave an enema of warm water, and continued the nuclein every two hours.

April 17th. Has less pain in back, swelling gone from the wrist and diminishing in the glands. Temperature  $98^{\circ}$  F., pulse 108, respirations 22. Urine loaded with albumin, specific gravity 1.032. Treatment continued.

April 18th. Had a restless night; complained of pain in the back and ankle-joints from 9 P.M. to 5 A.M., and had frequent desire to urinate. Temperature  $98.5^{\circ}$  F., pulse 112, respirations 26. Glandular swelling diminishing, appetite fair, specific gravity of urine 1.022, less albumin. Nuclein continued, with small doses tinct. digitalis added.

April 19th. Patient passed a fair night. Temperature normal, pulse 110, respirations 22, appetite good, swelling in glands almost gone, no pain in back or ankle-joints. Urine more abundant, specific gravity 1.022, only slight show of albumin. No change in treatment.

April 20th. Had a good night, temperature  $98^{\circ}$  F., pulse 110, respirations 22. Glandular swelling gone, appetite good, bowels regular. Urine free from albumin,

specific gravity 1.018. Treatment continued same as before.

April 22nd. Condition about the same.

April 25th. The patient continues to improve. Advised the nuclein given at intervals of three hours for ten days longer.

Case VII.—Mrs. —, aged fifty-two years. Had had acute tonsillitis several days when I saw her on the morning of May 5th, 1895, which she had treated with cold compresses and domestic remedies. She had passed a very restless night, had great difficulty in swallowing, intense pain in the throat and left ear. The left tonsil was greatly swollen and the soft palate swollen and edematous. Temperature  $102^{\circ}$  F., pulse 100.

I prescribed nuclein solution one-third minim every hour, and used locally, ammonium muriate and cubebs in tablet form.

May 6th. Patient passed a comfortable night. Temperature  $99^{\circ}$  F., pulse 84. Comparatively free from pain, swelling and edema much less; taking food and drinks without especial pain or difficulty. Treatment continued.

May 7th. The patient was reported as having passed a good night; free from fever, good appetite and feeling much better.

Case VIII.—Mr. —, aged sixteen years. Consulted me at my office May 6th, 1895, for acute follicular tonsillitis. Both tonsils were swollen, painful and studded with points of grayish exudation. Temperature  $102.5^{\circ}$  F., pulse 116. Complained of an intense aching of the body and severe pain in the throat on swallowing. I gave him nuclein one-fourth minim every hour.

May 7th. Patient feeling much better. Temperature  $99^{\circ}$  F., pulse 90, tonsils reduced in size, less painful and free from deposit. Ordered the nuclein taken as before.

May 8th. Temperature and pulse normal, appetite good and feeling well. He was directed to continue the medicine as before for another day.

Hannibal, Mo.



## THE FEEDING OF INFANTS.\*

By PHILIP F. BARBOUR, M.D.,

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in the Hospital College of Medicine; Vice-President  
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How to feed the newborn is one of the tritest of medical subjects. But we are in position to-day to answer the question more satisfactorily than did our predecessors, because our knowledge of the constitution of milk and the physiology of digestion has advanced greatly in the last few years. The advances that have been made in Bacteriology have been put to very practical use in the preparation of the bottle. The dissemination of chemic knowledge has opened here a most valuable field for investigation. Those who learned chemistry in the older days, and have not had time to refresh their memory, would doubtless be surprised at the intimate relations subsisting between modern chemistry and modern medicine. It is the application of the laws of chemistry and bacteriology that is enabling us to lessen each year the mortality of the bottle fed infant, and to attain for future generations the physician's *desideratum*: *mens sana in corpore sano*.

The more accurate analyses of organic compounds growing out of a fuller understanding of chemic technique, has enabled us to obtain results in the analysis of milk which were heretofore unattainable. The modern pediatrician has not been slow to avail himself of this more accurate knowledge.

Where the milk supply is good, such as it is in the smaller towns and to some extent in the large cities, the preparation of the bottle does not require such close attention as is demanded in the larger cities where the milk is eighteen to twenty-four hours old before it is served to the customers. But we allow the traditions of female ancestors to dictate how the bottle

shall be fixed, without taking into account the example which nature has set us as the ideal infant food. There are many differences between mother's milk and cow's milk.

As a result of the latest analyses we may take the following figures as sufficiently accurate for every day use.

Mother's milk contains.....	7%	Lactose
Cow's milk contains.....	4%	Lactose
Mother's milk contains.....	4%	Fat
Cow's milk contains.....	4%	Fat
Mother's milk contains.....	2%	Proteids
Cow's milk contains.....	4%	Proteids
Mother's milk contains.....	$\frac{2}{10}$ %	Ash
Cow's milk contains.....	$\frac{7}{10}$ %	Ash
Specific gravity about 1.031.		

Thus mother's milk is sweeter but contains less albuminoids and less ash. There is a difference in quality of the albuminoids also, for the albuminoids of cow's milk contains casein in the proportion of three to one of albumin, whereas mother's milk is the reverse.

Leaving out of consideration the chemic differences, mother's milk has the advantage that it is of uniform temperature, absolutely sterile, the container is contractile, thus avoiding the vacuum which is formed necessarily in the ordinary bottle and demands greater effort on the part of the infant; the milk is alkaline and the curd very fine.

It should be our object to approximate these conditions as closely as possible. Warmth, sterility and alkalinity can be attained if we try.

The usual method of fixing the bottle is to dilute the milk with two to three parts of water, add sugar and some alkali, lime water or soda. Remembering the constitution of cow's milk, one can readily see that dilution does not produce a milk even approximating the constitution of mother's milk. The addition of sugar and an alkali are good so far as they go, but the fatty element is very deficient. A baby can thrive on such a mixture, but it is at the expenditure of greater effort on the part of the digestive organs. Fat is a natural laxative, and very probably is the cause of

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breast-fed infant's having more regular bowels than bottle-fed infants who are usually fat-starved.

The fat is also useful and necessary in maintaining the body heat of the baby. Weight for weight, fat has more potential energy, that is, more heat-producing power, than sugar. The infant, having little reserve force, needs these heat producing elements. If the fat is deficient the albuminoids must be burnt up or the sugar increased, both of which are undesirable. That fat is of aid to digestion when in proper quantity is shown by the fact that, a diminished amount of fat produces constipation, while an excess produces diarrhea.

The formula for preparing the bottle which more nearly approximates the constitution of mother's milk than any other, is the one formulated by Prof. T. M. Rotch, who has done such splendid work in this field. His formula is in round numbers, to make one pint:

Milk.....	2 ounces,
Cream.....	3 ounces,
(As separated by centrifugal machine.)	
Water.....	10 ounces,
Sterilize and add,	
Lime water.....	1 ounce,
Sugar of milk.....	6¼ drams.

This will produce a milk which has about the composition:

Fat.....	4.0 per cent.
Albuminoids.....	1.1 "
Sugar.....	6.25 "
Ash.....	0.2 "

And is alkaline and sterile.

There are a few points to which I should allude more fully in the composition of this formula.

Lime water in the proportion of one to sixteen, furnishes the proper alkalinity. Any excess of lime will be a disadvantage unless indicated by diseased conditions. Lime is a better alkali than soda, as it is more needed by the growing child.

Recently some writers have advocated very strongly the use of sodium bicarbonate. It offers no advantage over lime water in any respect. It is said that fresh milk from cows fed on blue grass is alkaline in reaction. Blue grass drinks are the best of their kind.

The size of the curd in cow's milk varies with the amount of dilution. One part of milk to four or five of water secures a curd which is as fine as the curd in mother's milk. This is a great aid to the infant's digestion. Prof. Rotch has demonstrated that the addition of various agents, such as Mellen's Food, barley water, etc., accomplishes no more in breaking up the curd than so much water, and has no advantage over simple dilution.

Sugar of milk is theoretically the best sweetening agent. It is the natural sugar found in milk, and is evidently planned for the infant's digestive organs. The *bacterium lactis aerogenes* is found normally in the infant's intestine, where it acts upon the lactose to form lactic acid. This acid prevents the growth of many of the pathogenic organisms, and seems to be intended as nature's antiseptic to prevent trouble there.

Lactose is not so liable to undergo butyric acid fermentation as is cane sugar, nor is it so readily changed to alcohol. At the same time, cane sugar has given me no trouble where it was not used in excessive quantities. There is opportunity here for special work in physiological chemistry.

The sterilization of milk is one of the valuable applications of our knowledge of bacteriology. We can thus secure a milk which will keep for a long time, for all the germs are destroyed. But the temperature of 100° C. if maintained for a while produces changes in the milk that are not at all desirable. The odor and taste of such milk are not agreeable. The absence of the gases CO<sub>2</sub>, N, and O, which are present in fresh milk, makes the milk insipid and the albuminoids are so modified by such boiling that they are not so easily digestible.

Pasteurization is not open to the same objections, and will prevent changes in the milk for about twenty-four hours. It is said also, to volatilize the tyrotoxicon ptomaine, though milk containing it

would doubtless be discarded for other reasons. Of course, perfect cleanliness in every detail of bottles and nipples is absolutely necessary, for sterilization otherwise would be a farce. When the milk is thus prepared it will usually be found to agree very well with the nursing, but as the child grows older the proportion of milk should be increased somewhat.

Artificial feeding has one advantage over human milk, and that is, the milk is much more uniform in its character. Mother's milk is liable to variation from several different sources. Frequent nursing increases the solids in the milk, whereas longer intervals increase the watery constituents. This explains why the children of working mothers, who are away from home all day, and nurse when they return at night, so frequently suffer from rachitis and other disorders of nutrition. On the other hand mothers, who, to quiet the child, keep feeding at the breast every hour, produce a milk which is peculiarly indigestible from the excess of albuminoids.

The excitement of progressive euclre, the menstrual period, care and anxiety from any source may produce similar effects on the constitution of the milk. One of my patients was frightened by the explosion of a gasoline stove, and her child began to pass undigested curds within a few hours. The advent of the menses almost always produces digestive derangements in the suckling. What changes, if any, are produced in the albuminoid constituents, we have not yet found means to determine, but we know that they are increased. It is to be expected that our nervous and excitable American women should have colicky babies.

We can vary the constituents of mother's milk to some extent by the character of food. Thus a rich diet with rich milk, etc., is singularly enough much more apt to increase the albuminoid constituents of the milk than the fatty constituents. A plain simple diet, skimmed milk, and

slightly increased proteid substances will tend to make a good breast milk with an abundance of fat. Then lengthening the intervals between nursings will make the milk more watery, and in the case of a sick infant will materially relieve the digestive organs. The intervals between nursings should be uniform excepting at night.

It ought to be noted in this connection, that various drugs are known to be eliminated in part in the milk, and large doses of morphine have produced fatal results in the infant.

The subject of artificial or patent foods, and the discussion as to which is the best, would occupy too much time. A few remarks will cover the field for us to-night. There is no infant food at all comparable to cow's milk. They all contain starch or starch converted into dextrine or glucose. The starch is not easily digested by the infant's organs, and the glucose being in a form to be assimilated does not furnish that stimulation to the intestinal organs that would tend to make them do their proper work, just as digested foods would be bad for the stomach as a constancy. Then, the patent foods are deficient in fat, which I have shown to be a very necessary ingredient. Though we find numerous pictures of very fat babies advertising these foods, we all know that fat is no evidence of fine health, and, in fact, may co-exist with rickets; when the child is sick the fat fairly melts from them.

Condensed milk has long been known as a convenient and nutritious food, but as usually served to the young infant it is so weak as rightly to have merited the saying, "Condensed milk — condensed baby."

Condensed milk when diluted with nine parts of water approximates fairly closely to the constitution of mother's milk, except in the amount of fat, which is very deficient, and in the kind of sugar. If cream be added in the proportion of 3 i to 3 i of the mixture it will be very nearly of the proper composition. It is recognized

to be an easily digested food, because the albuminoids are in nearly the proper proportion for the child's digestive organs.

Infants ought to be weighed frequently, so that we can see if they are getting nourishment in proper quantity and quality.

#### REMARKS.

Dr. J. W. Irwin:—Someone has said: "Whoever hesitates to utter that which he believes to be the highest truth, lest it should be too far in advance of the time, may reassure himself by looking at his acts from an impersonal point of view. He should remember that opinion is the agency which adapts external influences to itself; it is a unit of force constituting with other such units the power which works our social changes, and he will see that he can give full utterance to his conviction, leaving it to produce what it may. Man, with all his beliefs, aspirations and capabilities, is not an accident, but a product of time; he should remember that while he is an offspring of the past, he is also a parent of the future, and his thoughts are as children born to him, which he may not carelessly let die."

I was much entertained by the paper, in that it brought out a great many points, and while they are not new they are presented to us in a new dress. The doctor's painstaking essay calls for a great many more remarks than I am able to make. The original part of the paper I appreciate very much, in that it shows cause and effect. We have had pointed out to us what produces rickets, and what causes scurvy in babies; we have seen these causes from a chemical point of view, which is quite in accord with the laws of known phenomena, and which are absolutely incontrovertible. If the chemist had pursued his remarks a little further and included the toxines, it would have been more interesting to us. It is also easy to see from his remarks that tyrotoxon appears to be a product of cow's milk rather than of human milk; we accept his view because we know that cow's milk is the source; we have seen, too, another important thing, and that is how to feed infants by the use of condensed milk.

Heretofore we have used too little con-

densed milk, in other words, we have starved our babies; but strange to say those babies most starved, contrary to the laws of chemistry, have done the best. I have seen a great many such cases. One important point in the management of infants, so far as I have been able to note, has been the danger of overfeeding.

So far as the sweetening is concerned with the sugar of milk, which is theoretically and chemically the ideal sweetening for babies' food, unfortunately, experience will teach the chemist, as it has taught me, that it is not as good for babies as cane sugar. We have to use so much sugar of milk to sweeten, that it is out of proportion to the milk used, and it makes the milk in a short time disagree with the infant. For some reason more decomposition follows its use than when food is sweetened with ordinary cane sugar.

Concerning the milk of cows for babies' food, we all recognize that next to mother's milk, this is the best, as the essayist has stated. But there are many babies, who, perhaps by inheritance, or a disturbed condition of the digestive apparatus, cannot take cow's milk at all. It is often absolutely poisonous to them. In such cases are we to insist that they take cow's milk? We must resort to something else. Here we find exceptions to the general rule, and the chemist, after all, does not furnish us with necessary information covering these exceptions, which are numerous. So far as my observation goes, and I am speaking mainly from what I have gained from results of experience in feeding infants, I find about sixty per cent. of children who can take cow's milk in some dilution without adding to it any other artificial food. The other forty per cent. cannot digest cow's milk by itself, but when mixed with artificial food they are able to digest it. For instance, the addition of Horlick's food, Mellin's food, etc., will render cow's milk easier of digestion for babies in about twenty per cent. of the cases. We find also, that many cases of the forty per cent.

cannot take milk at all. Then we will have to resort to Mellin's or some other food prepared after the Liebig idea for artificial feeding.

Some years ago, Fairchild Brothers & Foster gave us a preparation of milk in the form of a powder which was supposed to be a chemical food for babies. It was looked upon theoretically as an ideal food. And really, to look at it theoretically, it would seem to be the best food for infants outside of mother's milk. After a trial with this food, and after considerable experience with its use, I found that about eight per cent. of babies could take it and not be made sick, while a great many it made very sick, causing diarrhea and other disturbances. On the whole it was found that in this preparation we had some improvement in the way of food for infants. Horlick's malted milk we find is the best preparation on the market to-day. Formerly Nestle's food was thought to be superior to any other, and perhaps next to Horlick's it is still the best form of artificial food for babies. I have found that it agrees with about twenty per cent. of the babies, and eighty per cent. cannot take it at all. So that when we consider the question of feeding babies, practically, leaving out the chemical idea which we all know is of value, we find that we have to resort first to one kind of food and then to another, in order to keep the baby well. So that when we try to lay down any specific rule for the feeding of any human being, we are likely to meet with many exceptions and find it impossible to carry out the ideas which may be suggested by the chemist.

On the whole Dr. Barbour's paper is very useful, with the few exceptions which I have noted, and which I have expressed as frankly as he has his chemical ideas.

Dr. Thos. P. Satterwhite:—My experience with regard to the feeding of infants is somewhat like that expressed by Dr. Irwin. Of course, we all recognize mother's milk as the proper food for babies, and as more easily digested than

anything else. Pure cow's milk comes next. In some cases we find that no form of milk can be digested. The baby has indigestion, and you have to seek that form of food which will agree with the case. We cannot confine ourselves to any strict rule with regard to feeding infants, and the general ideas expressed by Dr. Barbour are undoubtedly correct. In many cases the baby is unable to digest the casein, no matter how flocculent it is made by the addition of Horlick's food or barley water. My rule is, when the child persistently shows an indisposition to digest milk, to stop it altogether.

There can be no question but that the tendency is to overfeed an infant, particularly where mothers nurse their children at the breast. I am always in the habit of directing mothers to give the baby plenty of water; if given an abundance of water they do not nurse so frequently. My instructions are to allow the very young child to nurse not oftener than every two hours, and as it grows older, every three to four hours, giving an abundance of water. Often the child cries and becomes fretful for the want of liquids, and will nurse simply to quench thirst. In such cases it is easily seen how they are overfed, and the result is often very alarming. Young mothers especially should be carefully instructed in matters of this kind, so that their offspring may receive proper care, proper feeding, and consequently proper assimilation and nourishment.

Dr. P. F. Barbour:—There is no doubt in the world that one man's food is another man's poison, and the same thing may be applied to the feeding of infants. There is no form of food that will agree with all infants. Mother's milk does not always agree with them; at the same time we recognize that mother's milk is the ideal, so to speak, and in preparing food for infants it should be our aim to make it as nearly the composition of mother's milk as is possible.

Eustace Smith in his valuable work gives an analysis of mother's milk, which

varies materially from the analyses obtained by modern methods. They did not know the methods by which we are able to make the careful analyses later investigators have shown to be necessary in order to arrive at accurate results. What I wished to direct attention to in my paper was the exact analysis of mother's and of cow's milk, by giving the constituents of each and the relative differences. Of course, I realize that any kind of milk will disagree with some children, but one advantage about work of this kind is that it enables us to find out from theory where the trouble lies. If the milk disagrees with the child, and we examine it, possibly we shall find it contains too much of the albuminoids and consequently too much casein. If we find too much of the albuminoid substance it can be reduced. This may seem rather theoretical to you, but cases have been observed where the mother's milk disagreed with the child, some constituent in it, either albuminoid substance or fat, was out of proportion owing to the mother's manner of life, and when the cause was found and corrected there was no further trouble. Or, for instance, a wet nurse's milk, which agreed perfectly with the child at first, may, after two or three weeks, disagree and make the child sick. If the nurse is discharged and another secured, the baby will get better; but perhaps at the end of two or three more weeks it will be found that her milk contains some constituent which makes the baby sick. The cause of this is change of diet of the wet nurse from the common ordinary food she has been in the habit of eating. The ordinary plain food produces a milk much more digestible, less albuminoids and more fats, than the milk produced by rich food, fatty food, creams, sauces, and things of that kind. The practical point is, that when a wet nurse's milk agrees with a child, she should be kept upon a strict diet.

By experimenting with the milk we are able to tell which one of its constituents disagrees with the child, and we can then increase or decrease this element as may

be indicated until the proper result is produced. As to whether lactose is better than cane sugar for sweetening milk for infant feeding: In giving the rule, I did so largely from a theoretical standpoint, but my experience, in every case where cane-sugar was used in moderation, has been that the milk did not set up any digestive disturbances in the child.

With reference to the point Dr. Irwin made, that we so frequently overfeed the child, in speaking of the fact that condensed milk was often diluted too much: There is no question, that the tendency is to overfeed the child, but there is one thing about making condensed milk so weak as we do: we put too much liquid in the child's stomach. The normal child's stomach at birth will not hold over an ounce. A great many are smaller, and will not hold even an ounce. If we dilute the milk too much we will not get enough food in the stomach to sustain the child for two hours. If the child takes enough of the diluted mixture to get the proper nourishment, which is more than the stomach will naturally hold, it produces dilatation. In autopsies the stomach is often found dilated out of all proportion to the size and age of the child. The average mother in one day will not produce much over one quart of milk, and young children should not take over one and one-half to two ounces at a time. If the child is fed on cow's milk which is made practically of the same constitution as mother's milk, there will not be so much tendency toward overfeeding.

One point I particularly wished to make clear in my paper, *i. e.*, in order to supply the child with the proper nourishment, and not to feed it to excess, with any kind of food, we must prepare a food which shall be the same in constitution as mother's milk, so that the child will not have to take so much food into the stomach to get the required amount of nourishment.

As to the value of infant foods:—I spoke of them in very few words: There are times when infant foods are of the greatest service, but as a rule they are not of the composition that the child's digestive organs demand. Starches and dextrins are not what the child needs.

Pre-digested and peptonized milk are open to the objection that they violate physiological laws. Doing the work for an organ lessens its capacity for doing its work.

## DISEASES OF THE RESPIRATORY APPARATUS—THERAPEUTIC CONSIDERATIONS.

By JOHN E. BACON, M. D.

### THE TREATMENT OF PULMONARY TUBERCULOSIS.

The *Therapeutic Gazette*, for August, 1895, contains two articles on this subject which furnish excellent illustrations of two distinct lines of therapy, both based upon the action of remedies upon the cell, and both dependent upon the cell activity for results. Both produce the same effect upon the organism at first, *i. e.*, hyper-leucocytosis, but by a different action; the one by *irritation* of the cells and the cell-making organs, causing the cells to make extra effort, by hyper-leucocytosis, and increased cellular activity, to cast out the new irritating invader; the other by *supplying food* and the constituents required by the cell for extra effort and work.

In an extract from the *Medical Chronicle*, for April, 1895, the *Gazette* gives an account of the method followed by Prof. Landerer in the treatment of tuberculosis by the intravenous injection of an emulsion of cinnamic acid. He has treated seventy-eight cases of the disease during the last three years by this method, with eighteen deaths (twenty-three per cent.), but the article fails to state how many were absolutely cured.

Moschowitz (*Medical Record*), following the same method, has not obtained such good results; of eleven cases, two died, six were improved, and in three the results were negative.

Mader (*Wiener Klin. Wochenschrift*, 1894, No. 50), states that he has not obtained any curative results from the treatment, and that local inflammation has followed the injection in cases where some of the emulsion escaped along the side of the vein, and severe pain in head, chest, or sacrum has often followed the administration of the remedy.

These results are exactly what should be expected from the use of a remedy the

physiological action of which is that of an irritant to the glandular system and the cells thereof, and those of the blood. Primarily, it would produce an increase in the number of leucocytes, which would, of course, attack the bacillus tuberculosis in the lungs and its poisonous products in the blood, and at the same time quicken every eliminative structure in the body to carry off the new irritant so introduced, and thus produce a temporary beneficial effect. But at what cost?

The increased metabolic activity of the cell demands increased nutrition, which the remedy cannot supply; nor does it act in any way to favor nutrition by the digestive system. Thus it only serves to more quickly wear out and use up the energy of the cells and to weaken them by over-stimulation, which can only result in lowered vitality and ultimate paralysis of function.

Cinnamic acid is purely an antiseptic, which, if brought into contact with the tubercle bacillus, would quickly destroy it, as would, indeed, bichloride of mercury or creosote; but the theory of its similar action in the lungs when introduced into the blood will not stand the test of time, for it is wrong in principle.

The use of pilocarpine hypodermatically in the treatment of this disease is based on the same principle and, as pointed out by Dr. Aulde (*AMERICAN THERAPIST*, April, 1895), is destined to the same failure in actual practice.

The other paper above referred to is one by Dr. Reynold W. Wilcox, of New York, reporting a case of tuberculosis in which the apices of both lungs were consolidated to the third rib, and which presented all the classical signs and symptoms of the disease, with the sputum loaded with the bacilli; treated with nuclein solution by hypodermatic injection. A complete clinical record of the case is given, and it clearly shows the beneficial action of the remedy from the first. The patient was admitted to the hospital on Nov. 29th, 1894. He was suffering from hemorrhage

in the upper lobe of the right lung, due to tubercular infiltration. Treatment for the acute condition induced by the hemorrhage was instituted for five days, and on Dec. 4th, the injection of nuclein was begun. The dose was ten minims twice daily, increased by five minims daily until a maximum quantity of eighty minims was given daily. The injections were made with an aseptic syringe, under antiseptic precautions, into the muscles of the back, chest, or gluteal region, and were given daily until Jan. 30th, 1895, when the patient was well enough to resume his work. The dulness had progressively decreased, the cough and expectoration had very markedly diminished, and the patient had regained his weight and strength. No bacilli could be detected in the sputum at the time of his discharge. On Febr. 15th no bacilli were found, and the patient was still gaining, though working steadily. Now what is the action of a remedy that produces such results?

"Vaughan and McClintock have shown that the germicidal substance in blood-serum is a nuclein, and that the most probable source of this nuclein is the polynuclear white corpuscle."

"Huber has shown that the subcutaneous injection of nuclein increases the white corpuscles in both healthy and tubercular individuals, even to three times the original number, and that the increase occurs principally in the polynuclear cells."

This increase is similar to the physiological increase that occurs after a full meal, and in that respect differs from that produced by the entrance into the circulation of an irritant. The remedy which produces it carries food to the cells and thus sustains their life, increases their metabolic activity and so favors the process known as *phagocytosis*, which is inimical to bacterial life in the tissues.

The author explains the benefit resulting from the treatment thus: (1) Because the nuclein increases the vigor of the cen-

tral nervous system; (2) because it has germicidal properties, and (3) because its use results in the production of polynuclear corpuscles. He believes its use stimulates the organs which elaborate these bodies.

In conclusion the author says, "I believe it to be true (1) that nuclein is absolutely harmless, (2) that it assists nature in limiting the effects of bacterial invasion, (3) that it offers, in comparison with other 'specific' methods, the best prospects of success in the treatment of pulmonary tuberculosis."

#### PRACTICAL POINTS IN THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.

Dr. Fischer (*Medical Record*, April 6th, 1895), details some observations based on a total of two hundred and twenty-five cases of diphtheria treated with antitoxin. The total mortality was thirty-five, including one death due to carelessness of a trained (?) nurse, in a tracheotomized child. Of this number there were sixty-eight cases which showed distinct evidence of nephritis, and one hundred and forty-one cases showed albumin in the urine.

In sixty-four cases hematuria appeared within forty-eight hours after the injection of antitoxin, and the author lays particular stress upon the importance of carefully watching the urine of each injected patient for casts.

One particular consignment of the serum was always followed by the appearance of a rash, resembling in different cases urticaria, measles, and scarlet fever, but subsequent supplies did not present this property. The author suggests that this may have been due to some impurity in the blood of the animal from which the serum was obtained, and emphasizes the importance of the most careful selection of animals for the production of the remedy.

Post-diphtheritic paralysis was observed as frequently as under the former methods of treatment, but it was noted that those cases which were injected early had a milder form of paralysis than those inject-



ed late. This is probably due to the fact that the remedy neutralizes the poison of diphtheria that has been absorbed and prevents the elaboration and absorption of more, and so protects the nerves and muscles from its continued action.

The author has laid down excellent rules for the administration of the serum, which are here reproduced.

1. A careful sterilization of the skin at the seat of the injection, the interscapular space, or the pectoralis region. Sterilization consists of washing the skin with soap and warm water, then sponging the skin with a 1000 to 2000 sublimate solution.

2. The hands of the physician must be carefully and properly cleaned and rendered aseptic.

3. The syringe should be completely sterilized by boiling fifteen minutes in a sodium solution. The needle should be dipped in alcohol, followed by a two per cent. solution of carbolic acid.

4. It is necessary to inject slowly, at the same time to have the proper quantity of serum drawn into the barrel of the syringe, so that no time is lost. The needle should be pushed into the deep cellular tissue at least two inches in a semi-horizontal position.

5. Massage of the fluid injected with the skin should not be practised; finally, apply a very small pledget of absorbent cotton over the injected space, and the oozing of a small quantity of serum makes a film which completely prevents the entrance of septic material. The injected spot can also be sealed by dropping collodion over it.

In conclusion, the author states that, if used according to the above directions, it is safe, and should always be used even in the most desperate cases, and the earlier the better. It is, in his opinion, the best remedy in use to-day in the treatment of diphtheria.

#### STRAWBERRY SORE THROAT.

Dr. E. L. Vansant (*Phila. Polyclinic*, July 20th, 1895), draws attention to an acute angina caused by the use of strawberries. Dr. Vansant has observed the condition in the same patients as occurring annually during the strawberry season. The majority of the cases were in patients of a gouty or rheumatic diathesis, and the

condition is especially apt to occur in such subjects, although cases are reported in patients free from it.

The symptoms which appear suddenly are, acute pain, disturbance of the voice, much hawking and desire to cleanse the throat, and slight constitutional disturbance, elevation of temperature, gastric irritability and constipation.

Examination reveals general redness, slight swelling of the pharyngeal mucous membranes and some swelling and congestion of the tonsils, with increased and viscid secretion; the larynx is not commonly affected.

The cases all recovered under proper treatment, but what that treatment was we are left to imagine, though it was probably a few doses of sodium salicylate and a gargle of a salol solution or rhus glabra with potassium chlorate and glycerin.

The work of American writers is showing a tendency to become *germanised*, that is, the pathological conditions are studied and analyzed by chemical, microscopical and bacteriological means, which is of course essential, but not enough attention is given to the *means* whereby *practical* results are obtained: this is decidedly noticeable and is to be deplored; even where formulæ and methods are reported, very little is said of the physiological action of the remedies employed; nor is enough reported of the details of the treatment. To say that a case of malaria made a rapid recovery under treatment by arsenic, is not sufficient to inform the reader how arsenic should be given to obtain the result described, as large doses and small doses of arsenic produce very different results. Medical literature, to be of value to the practitioner, must not only state facts, but explain them and give the details and rationale of processes which demonstrate them.

#### HYGIENE OF THE UPPER AIR PASSAGES.

Dr. Joseph A. Mullen (*Texas Sanitarian*, July, 1895) concludes an excellent paper on the above-named subject with the fol-

lowing suggestions, which include the principal points made in the article.

1. Pure air is absolutely essential.
2. The inspired current of air must be of the same temperature and indicated moisture as the ambient tissues.
3. These two qualities depend upon normally acting nasal passages.
4. The nasal chambers and not the mouth are the normal air-chambers.
5. Mouth-breathing is rarely a habit, but almost always a necessity.
6. Mouth-breathing is distinctly abnormal and produces structural as well as mental deformities in children.
7. Mouth-breathing depends upon nasal, post-nasal obstructions or adenoid growths for its incipency or perpetuation.
8. All obstructions interfering with normal nasal breathing should be removed, particularly chronically enlarged tonsils and adenoid growths.
9. The middle-ear, like the lungs, should receive its pro rata amount of properly prepared air.
10. Singers and speakers should be scrupulously careful not to use their voices in the open air, and particularly not to pass immediately into the damp night air after any unusual vocal efforts; and furthermore, they should know more about the mechanical production of voice before they can ever expect to use it properly and to advantage.

#### PAROXYSMAL SNEEZING.

Prof. W. Scott Renner (*Buffalo Medical Journal*, Aug. 1895), directs attention to a condition characterized by the classical symptoms of hay-fever, but not associated with any particular irritant or limited to any particular season of the year.

The symptoms are, paroxysms of sneezing with profuse watery discharge from the nose and eyes; intense tickling in the anterior part of the nares, sometimes extending backwards to the posterior nares and fauces; a sense of oppression in the chest is common, and after this condition has persisted a year or so it usually de-

velops into a well-marked asthmatic paroxysm, which may recur about the same hour daily. After this has gone on for some time the patient becomes nervous and irritable, with a haggard look and much frontal headache.

Rhinoscopic examination of these cases will not reveal the same apparent cause for the symptoms; in a series of the cases there will be found septal spurs, polypoid degeneration of the middle and inferior turbinals, hypertrophy of the turbinal mucous membrane, and a peculiar color of the turbinal membrane and sometimes of the septal membrane, in some being of an ashen-gray color and a sodden appearance as though water-soaked; in others of a deep red color, also sodden in appearance. On touching the septal and turbinal membranes gently with a bare probe, spots will be accurately made out, irritation of which will produce violent sneezing and in some cases will bring on a typical attack of asthma. These spots are identical with those described by Sajous and John A. Mackenzie in connection with hay-fever.

The author, though describing the disease under another heading, very properly believes it to be identical with hay-fever, hay-asthma, and rose-cold, only differing in the active irritant. He likewise notes that cases suffering from hay-fever for a long time are very apt to merge into this condition, and suggests the name rhinitis vaso-motoria chronica in contradistinction to the rhinitis vaso-motoria periodica, as applied to hay-fever by Mackenzie. The psychical element has more to do with the production of hay-fever than with this disease, says the author, though it is likely that it has more to do with the onset at a particular time and the *limitation* of hay-fever to a certain period than with the actual cause of it. The writer believes that the physical condition is always present, and it needs but the psychical condition to bring on the attack, as evidenced by the fact that the sudden sight of an artificial rose can pre-

cipitate an attack at any time in some patients.

The treatment of this condition must be determined by careful examination of each case; thus, hypertrophies and marked deflections of the septum should be corrected by surgical means; hypertrophic rhinitis and polypoid disease should each receive their appropriate treatment; and the hyper-sensitive spots, which are always to be found by the persistent observer, should be made out and carefully cauterized. The author uses pure carbolic acid or a 4 per cent. to 10 per cent. solution of chromic acid for the purpose, and states that really a counter irritation is what is indicated rather than destructive cauterization.

The writer agrees with the latter statement, but has found the galvano-cautery at cherry-heat to be the most satisfactory agent to use, and has employed it for a long time without ever leaving an eschar or cicatrix except where such a result was intended.

Constitutional remedies are indicated in this disease, the indication being to tone up the blood-vessels, or rather the vasomotor control of the same, and to stimulate especially the nervous supply to the special senses. This is met by the use of arsenic, preferably in the form of Fowler's solution, given in drop doses three times daily after meals, and in cases in which the psychical element is pronounced, the following pill may be used with advantage for a short time:

R Zinci phosphid.....gr. ii;  
Ext. bellad.....gr. iv;  
Ext. nucis vom. ....gr. x.  
M. et ft. in pill No. XXX.  
Sig. One pill after each meal.

#### ACUTE URTICARIA OF THE FAUCES.

Dr. Jos. S. Gibb (*Phila. Polyclinic*, August 3, 1895), reports a case of the above-named disease, and calls attention to the possibility of the disease making its appearance in the larynx as well as upon the soft palate and pharyngeal wall.

The symptoms were directly traceable to an over-indulgence in strawberries, and

were, a general urticaria affecting the trunk and head, and the upper and lower limbs. On the second day of the disease the patient became hoarse and experienced difficulty in swallowing, which condition rapidly became worse, and a sense of suffocation supervened which became so severe that a fatal result seemed imminent. Examination revealed great swelling of the uvula and half-arches of the palate, the whole being intensely red and edematous. Cracked ice held on the tongue and a sedative gargle were ordered, and recovery ensued in about twenty-four hours. Dr. Gibb believes the symptoms to have been due to the presence of an articular wheal on the uvula or soft palate, and suggests the extreme danger that would be caused by a like condition in the larynx. Prompt scarification of the edematous tissue is indicated when marked embarrassment to respiration occurs.

#### THE EARLY RECOGNITION AND CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS.

Dr. H. B. Moore, of Colorado Springs, Col. (*Medical News*, August 10, 1895), in a paper with the above heading, makes a strong plea for more precision in the diagnosis, and more decision in the treatment of tuberculosis.

Dr. Moore calls attention to the fact that thousands of cases are kept at home under bad sanitary and climatic conditions while the patient is rapidly passing through the stage in which he can receive benefit or a cure by removal to a high altitude. From years of experience with tuberculous cases in that climate the author says, "It is far from wise to send every such case to Colorado to try the high altitude treatment. The prospect for an arrest of this disease diminishes very rapidly with its advance, and what has been a most favorable case may soon become inappropriate for this climate." This is entirely in accord with the experience of the writer. It is safe to say, that fifty per cent. of the cases sent to Colorado are sent too late, and might better be allowed to die in peace in their own homes.

Notwithstanding the modern methods of diagnosis and the excellent training of the younger graduate, many cases of incipient tuberculosis are not recognized and are encouraged to keep on with their ordinary avocations until the appearance of hectic or a sharp hemorrhage makes the diagnosis so plain that "He who runs may read." Dr. Moore, very truthfully says, "One error probably fallen into oftener than any other even by physicians, is the idea that a person who looks well or nearly so cannot have tuberculosis. They cannot harmonize the appearance of an apparently healthy person before them with their conception of the pale and wan tuberculous patient, and forget that tuberculosis, like other diseases, is an infective disease and must have a beginning as well as an end."

Experience has proven conclusively that the cases suited to climatic treatment are those showing only the earlier manifestations of the disease, and that those in which it has progressed to the stage of active softening of the large infiltrated areas are rarely benefited. In these cases the absorption of the products of bacterial activity have so weakened the cells of the entire organism that they cannot, even under the most favorable conditions, cope with the rapidly multiplying hosts of the invaders. (The indication for nuclein medication).

Another point taken by the author is, that patients are sent there with the assurance that "two or three months or one winter will be sufficient to effect a cure." This is a great mistake, as cases which are thoroughly infected must spend years instead of months, and probably the remainder of their lives, in a high altitude, if they would completely shake off the disease. In many cases the disease will become checked in that climate; that is, the growth of the bacilli will be retarded, only to reappear when the patient again returns to the sea-level to live.

Altogether the paper contains some very valuable information, and should serve as a strong hint to many physicians, to thoroughly examine the chests and have the sputa of some of their patients examined for the tubercle bacilli.

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## HISTOLOGY AND CLINICAL MICROSCOPY.

By CHARLES P. KNAPP, M. S., M. D.  
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*Nervous system.*—Ramony Cajal, The Croonian Lectures (*Br. Med. Jour.*). Investigations during the past five years warrant the following conclusions: (1) that there is an interstitial nervous network; (2) that a distinction should be made between sensory and motor cells; (3) that protoplasmic prolongations are nutritive. The author has brought forward and extended the doctrine of Golgi, that, with few exceptions, every nerve-cell possesses not only a process of Deiters, or axis-cylinder prolongation, but also protoplasmic processes, so that each nerve-cell appears to be a minute reflex apparatus having centripetal or cellulipetal, and centrifugal or cellulifugal processes, the former being represented by the protoplasmic processes, and the latter by the processes of Deiter, both of which possess numerous collateral and terminal fibrils. The transmission of impulses in the gray substance is effected, not by the direct continuity of the centripetal fibrils of neighboring cells, but by contact, or continuity, or apposition of the processes of one cell with those of another. The main function of the cell is of a trophic nature, and the real generation of nerve-force will be proved to take place in the wonderful plexus formed by the ramification of the cell-processes.

The lecturer suggested an hypothesis which he thought would enable us better than any other which had been put forward, to understand intellectual development produced by a well directed mental education, inherited mental excellencies, special professional adaptations and the formation of artistic aptitude. "Cerebral gymnastics" could not, he thought, improve the organization of the brain by increasing the number of cells, for, as had been fully established, the nerve elements lost their power of proliferating after the

embryonic period. But it may be admitted to be very probable that mental exercise stimulates, in those regions of the brain which are most exercised, a greater development of the protoplasmic apparatus and of the system of collateral nervous paths. Further, absolutely new intercellular connections might be established by the formation of new collateral connections and protoplasmic expansions. But how can the volume of the brain be maintained unaltered if there is a multiplication and even a new formation of the terminal branches of the protoplasmic appendices and of the collateral nervous connection? There is nothing to prevent our supposing either a correlative diminution of the cell-bodies or a proportional shrinking of those parts of the brain whose functions are not directly related to the exercise of the intelligence.

*The Leucocytosis of Diphtheria under Serum Therapy*—Ewing (*N. Y. Med. Jour.*). Summary: Diphtheria is usually attended by pronounced leucocytosis. The increase of leucocytes begins a few hours after the infection, probably appearing earlier in refractory individuals, and often being long delayed in susceptible cases with severe infection. In favorable cases the leucocytosis is greatest at the climax of the disease, and steadily declines during convalescence. There may be prolonged hyper-leucocytosis after other local and constitutional symptoms have subsided.

In unfavorable cases, the leucocytosis continues until death; but in somewhat prolonged cases, with much septic absorption, there may be an uninterrupted decrease of leucocytes continuing up to the fatal termination.

A complicating pneumonia usually causes a considerable increase in leucocytosis.

The degree of leucocytosis in diphtheria often varies with the fever, but much more frequently corresponds to the extent of the local lesion.

The intravascular leucocytosis of diphtheria measures exactly the systemic re-

action against the toxic products circulating in the blood and absorbed from the site of infection.

High leucocytosis in diphtheria indicates a pronounced reaction against a severe infection, but is not necessarily an unfavorable prognostic sign.

Steadily decreasing leucocytosis usually, but not always, accompanies a favorable course in the disease.

Slight leucocytosis usually indicates a mild infection, but fatal cases may for several days show no increase, or even a decrease, of leucocytes.

The staining reaction of leucocytes is an accurate measure of the severity of a diphtheritic infection, and variations in this reaction often precede changes in other symptoms.

Antitoxin, within thirty minutes after its injection, causes a hypo-leucocytosis, the reduction affecting specially the unicellular leucocytes, while the proportion of well-stained multi-nuclear cells is increased. This action is due largely to the immunizing principle contained in the serum. In favorable cases, after the injection of antitoxin, the leucocytosis never again reaches its original height.

In severe and less favorable cases, the injection is followed in a few hours by hyper-leucocytosis and fever, exceeding those symptoms as found in the original condition. In unfavorable cases, an injection of antitoxin may be followed immediately by rapid hyper-leucocytosis or extreme hypo-leucocytosis and death.

The reduction of leucocytes immediately succeeding the injection of antitoxin, especially in severe cases of diphtheria, is an undesirable feature of the action of this agent, and should as far as possible be avoided.

The multi-nuclear leucocytes found in the blood of favorable cases after treatment by antitoxin show increased affinity for gentian violet. This change may be observed twelve hours after the injection, and the failure of its occurrence is a very unfavorable prognostic sign.

The variations in the staining reaction of leucocytes in diphtheria indicate that the nuclei of those cells contain a principle essential to phagocytosis and immunity in this disease.

*Experiments with Serum Injections.*—(*Ibid.*) In normal rabbits, antitoxin produced immediate hypo-leucocytosis, which varied with the strength of the serum.

Normal serum, with or without camphor, caused a very slight reduction of leucocytes, or failed entirely to affect the blood.

*Experiments with Injections of Diphtheria Cultures.*—(*Ibid.*) The attempt was only partially successful. While an increase in the numbers of stainless leucocytes was noted continuously up to the death of the animals, the appearance of these cells did not perfectly resemble that of the stainless leucocytes found in the human subject. Such a result is, however, to be expected in view of the great difference in the conditions produced by such injections from those found in severe cases of pharyngeal diphtheria.

Wyoming, Pa.

## PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M. D.

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### NUCLEIN—ORGANO-THERAPY—SOME APPLICATIONS OF NUCLEIN.

Hollister, of Chicago, in a paper, *New Departures in Therapeutics*, read before the American Medical Association, said, "Organo-therapy is based upon the fact that all vital activity has a cellular genesis, and that an equilibrium of all these activities constitutes that condition which we call perfect health. Wherever there is an impairment of cell activity, we have impaired function, cell degeneration, and, in the worst cases, death. Remedial agents are valuable as they effect cell vitality.

Cells have a certain *vis vitæ*, or resistance, against morbid processes. They elaborate nucleins, proteids and albuminoids which oppose the influence of toxic products. Slight cell irritation increases cell activity. . . . . Cells are supposed to have a selective power of absorption. . . . . The theory of Brown-Sequard, which was so much ridiculed at first, has now become better understood and followed out in a logical way. With two substances of this latter group the writer has had some practical experience. He has used red-bone marrow for the past two years, for simple anemia, and has seen better results therefrom than previously with arsenic, oil or iron. He has also used nuclein. . . . . Vaughan has already shown that there are certain substances which can be abstracted from animal tissue, notable the thyroid, spleen and bone-marrow, which, when injected into the animal economy, seem to have an antiseptic power in the alimentary canal, stimulate the brain and nerves, and energize all vital processes. Nuclein seems antidotal to diphtheria, and the cell reaction which is originated by its use, increases the nuclein supply of the body."

Quine, of Chicago, said he had used the extract of bone-marrow, and could give his unequivocal endorsement as to its value in simple anemia and in cases of apparent pernicious anemia. In a case of splenic leukemia, it had increased the hemoglobin eight per cent., and the red cells seventeen per cent. Yet, notwithstanding this, the multiplication of white cells went on with even greater rapidity than before.

F. B. Turck, of Chicago, had seen good results follow the use of nuclein in the auto-intoxication which results from gastric disorders. This might show itself as a nervous irritability (neurasthenia, so called), or in a soporific depression leading up to melancholia. The toxins from the germ-growth are upon the intestinal walls; and the use of nuclein has seemed to get directly at the cause of the trouble. Especially good effects have been seen in

vaso-motor-excitation ("flashes," etc.), and in patients with agorophobia. (*Medical Record*.)

It is desired to call attention to the paper and the discussion following, but particularly to certain points: "Slight cell-irritation increases cell-activity." We, who read between the lines, may read a volume in this single sentence. In exhibiting remedies, we have been accustomed to large doses, producing not a "slight cell-irritation" but a profound one, thus prolonging often the disease we are attempting to antagonize, and, in not a few instances, exaggerating it. This is because we have overstepped the bounds of physiologic irritation, and gone into the territory of a pathologic one. The second point is one that was brought out by the writer in a paper on "*Immunity*," a few months ago. It is not more the actual increase of colorless corpuscles than it is their healthy condition, that determines the reaction to morbid influences. This is borne out by Dr. Quine's remarks in the foregoing.

The remarks of Dr. Turck are especially interesting as bearing on the article on auto-infection in the August number of the *AMERICAN THERAPIST*.

#### RATIONAL THERAPEUTICS OF CHOLERA INFANTUM.

Bleck remarks that the therapeutics which is based upon the etiology and pathology of a given case, is the only one to be employed. . . . . Whether or not of microbic origin, one thing is sure, it is due to a chemical decomposition of food, causing an inflammatory condition of the digestive and alimentary canal. . . . . As soon as called to a case of cholera infantum, prohibit for the first day, any food whatever. Remedies are of little value. The author has tried calomel, salol, the newer antiseptics, and bismuth, and finds they do not act quickly enough. He places his faith in hydrozone by the mouth and rectum. He advises also the use of morphine and strychnine hypodermatically. (*N. Y. Medical Journal*.)

The author's treatment is, doubtless, satisfactory in a number of cases, and his record of one death in twenty-three cases is excellent, but the remark "remedies are of little value," reminds us of the psalmist who sang, "In my *haste* I said all men are liars!" There is a remedy which comes under the category of rational therapeutics in cholera infantum, and which has given surprisingly good results. That agent is the arsenite of copper, and its use gives rise to the impression that it is almost a specific. What is its mode of action? In common with other metals of its class, copper in small doses is astringent, but it also possesses the highly valuable property of being antiphlogistic,—of contracting the smaller bloodvessels, not alone through coagulation of albumins and albuminoids, but by direct action. In small amounts it increases, too, the nutrition of the great nerve centres. Of decided value is the arsenious acid in combination with copper. In the stomach and intestines the former increases functions by acting on the nerves and vessels of the mucous membrane; but, if the dose be increased, *the stimulant action readily passes into irritation*. Taking into consideration these well known facts and the clinical results obtained from the use of arsenite of copper, more comment would be superfluous.

#### HEMORRHAGIC FEVER—THE USE OF QUININE IN ABNORMAL DOSES.

P. B. Loftin, in a paper on *Hemoarhagic Fever*, says, after your patient has had a hemorrhage, and you are sure you have a case of hemorrhagic fever, the first thing give sulphate of quinine without much limit—say eighty grains; then give twenty grains every half hour, until one hundred and fifty or two hundred grains are reached; then ten grains every hour until sick stomach comes on.

Hemorrhagic fever is the name employed in North Carolina to describe a type of malaria, chronic, which ends in hemorrhage, occurring usually, first, from the kidneys, although it may come primarily

rom the bowel. Dr. Loftin stated that if he could get to the patient within five hours after the hemorrhage first occurred, he could usually save him by the method described. In the discussion following his paper, Dr. Duffy said, he had known some instances where chills were followed by hemorrhagic fever, treated in methods he would presently describe, and then followed by quinine, and that the hemorrhage followed the use of quinine. Quinine was discontinued and other treatment used, and the hemorrhage disappeared; quinine again administered, and the hemorrhage returned,—sufficient to make him believe that there was a causative relation between the quinine and the hemorrhage. (*N. C. Med. Journal*, July 20, 1895.)

Is it a fact that quinine in large doses will give rise to hemorrhages? If so, why? If so, how? Turning to an authority (Bruce), we find that whilst small doses of quinine accelerate the heart and raise the pressure, full doses diminish the force and frequency of systole, strengthen diastole, and lower pressure; effects due to a direct action on the cardiac ganglia and muscle, and on the vessel walls and their centre. It can be granted, then, that with large doses, stasis occurs; stasis sufficient to allow diapedesis, and, if continued long enough, passage outward of the entire contents of the bloodvessels.

Dr. Duffy does not mention the doses which brought on hemorrhage; but the fact that hemorrhage did occur renders it an act of folly to administer it; then how much more so to give it in the astoundingly large doses recommended by Dr. Loftin? It is astonishing that some of us will continue to worship our idols even though they are proven clay, as has been satisfactorily (or unsatisfactorily?) done in the case of large *versus* small doses.

Perhaps the disease would succumb to the use of acetanilid, recommended by Brodnax as superior to quinine as an antiperiodic. This is merely a suggestion. If it should be used, it were well to combine it with a cardiac stimulant.

THE INFLUENCE OF ASPHYXIATED BLOOD AND SOME POISONS UPON THE CONTRACTILITY OF THE LYMPHATIC VESSELS. (*Le Progrès Médical*, May 18, 1895. By M. M. E. GLEY and L. CARNUS.

These gentlemen have continued their researches upon the lymphatic vessels by the graphic method, and have studied the action of asphyxiated blood, of pilocarpine and of atropine on the thoracic duct and on the receptaculum chyli. A few minutes after the beginning of asphyxia, the thoracic duct and the receptaculum chyli contract, and the movements of the latter increase the flow of lymph, in spite of the slight obstacle interposed by the narrowing of the thoracic duct. Pilocarpine increases the constriction; atropine relaxes the walls of the thoracic duct. These substances act here, as upon the heart and stomach, by the intervention of antagonistic nerves. Pilocarpine stimulates the vaso-constrictor nerves, while atropine paralyzes them, stimulating the dilator fibres. Curare also relaxes the walls of the thoracic duct. The lymphatic circulation ought, therefore, to be influenced as the circulation of the blood by the action of poisons which modify the calibre of the vessels.—*International Med. Mag.*

The influence of atropine in moderate doses, is to stimulate the vaso-motor centre; if continued for some time, or given in a large dose, the centre is depressed. The effect on the heart is with moderate doses, an evanescent stimulation of the vagus, followed quickly by paralysis with consequent increase of rapidity, raising, in conjunction with vaso-motor stimulation, the blood-pressure. Large doses depress the ganglia, and finally even the muscle, death occurring through cardiac failure, with the ventricle in diastole.

The action of pilocarpine is at first to accelerate the heart and pulse, but afterward they are slowed and weakened; the vessels dilate, the blood-pressure falls temporarily, then rises, and finally falls. Part of these effects is due to the action of the drug on the vagus in the heart, and can be arrested by atropine; part to the ganglia. We know from experience, that in all classes of cardiac trouble its use must be guarded,—it must be carefully watched.



From the foregoing, then, we see that the actions of atropine and pilocarpine on the blood circulatory apparatus differ radically from their actions, as demonstrated by the experimentors, on the lymphatic circulation. Unless there are some circumstances not reported, it is difficult to reconcile the two.

#### CAUSATION OF NERVOUS DISEASES—DEFECTIVE NUTRITION.

M. Allen Starr, in a paper on this subject, gives experiments on a dog from which pieces of brain were removed at the end of ten days starvation, and during a period of feeding until it had returned to a normal condition. The piece of brain removed at the end of starvation showed a transformation of the cell-protoplasm, part of which had disappeared entirely. The nuclei were pale, around the cells were leucocytes which, in some instances, had penetrated the cell. After refeeding four weeks, the tissue showed a further atrophy: Of some cells only the nuclei were left; in others a narrow border of protoplasm was seen around the leucocytes; the neurons were intensely stained and coarsely granular; in some cases the cells had entirely disappeared; the leucocytes were increased; occasionally the nucleus had become kidney-shaped; and it appeared as though the leucocytes were entering the cell. After six weeks, regeneration of the cells was found to have begun around the nucleus. Protoplasm had begun to accumulate, and, in some instances, it appeared to be bulging out of the wall of the cell, as though for new processes. The leucocytes around the nucleus were fewer, while none were seen in the protoplasm. After eight weeks of feeding, regeneration, with the exception of the protoplasm process, was complete. The trace of impaired nutrition in the cells remaining a considerable time after general nutrition has been resumed, is in accordance with the clinical experience of slow recovery from conditions of nervous exhaustion, when there is no organic disease.

The condition of impaired nutrition produced experimentally by starvation, is quite comparable to the impaired nutrition that must follow the arrest in the blood-supply. Therniplegia, aphasia, her-

nianopsia, herniaraesthesia, chronic nephritis, syphilitic affections, diseases of old age, etc., are all due to defective nutrition from imperfect blood-supply. Many manifestations of hysteria can be explained by a sudden suspension of nerve activity due to a spasmodic contraction of the bloodvessels producing sudden blindness, deafness, anesthesia, or, within the brain, as in the states of morbid intellectual and moral action so often seen in this disease, and evidently due to a lack of self-control.—*Maryland Medical Journal*, May 4, 1895.

An intelligent study of these facts conveys to the thoughtful physician that he has been administering remedies which, in the light let in, are proven useless—worse, harmful, for in exhibiting them he wastes the time which should be employed in active treatment. There is not such a thing as “rational empiricism,” a phrase recently used by a doctor in addressing a body of supposedly reputable medical men. The words are in themselves contradictions—incompatibles. Probably the doctor would employ bromides in the conditions before described, as a definition for his original term. The fault in a number of nervous and other diseases is a sedation, probably manifesting itself as the opposite condition. A comparison is the diarrhea of constipation. Would it be rational to administer astringents? May be “rational empiricism” would allow such practice, but the physician who studies his case with the reason his learning brings, would pursue a different course. So in many neuroses, as hysteria, neuresthenia, etc., due practically to a starvation, bromides and other sedatives are positively contra-indicated, while the nerve tonics are as positively called for.

Attention is drawn to the presence of leucocytes during the regeneration period, and their absence after nutrition had been re-established, as described in the foregoing. Their function, that of carrying pabulum, is clearly indicated, and it were well for us to follow the example set by nature.

1220 E. Broad St., Richmond, Va.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*  
WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### DEATH IN THE LOAF.

There appeared recently in the daily press a report to the effect that the death rate in the Norristown Insane Asylum for August had been unusually high, and an investigating committee was informed by the resident physician that for some time past the bread had been of an inferior quality, that it had become sour, and as a consequence the number of digestive disorders had greatly increased. It was suggested that this was one of the causes of the increased death rate. In all probability, this supposition was correct. Some years ago the writer had occasion to visit this institution, and found a sad condition of affairs in respect to the quality of the bread served, even that served at the officers tables. Candidly, this bread was wholly unfit for any human being to eat; but as this occurred about five years ago, it seems that the vitality of the Pennsylvania insane is something remarkable, provided the effects of this negligence are but beginning to show themselves.

The object in calling attention to this matter here is to emphasize the need for closer supervision on the part of the medical profession of the quality of the bread

which is furnished to patients, as there can be no longer doubt that death may lurk in the loaf. This is a most important matter, greater by far than the proper selection and administration of remedial agents, for food is of all the greatest remedy for the sick and convalescent. If physicians would closely scrutinize the food served to patients, and make it a special point to inspect the bread, sickness would be measurably decreased.

### CHANGING BABIES' FOOD.

From reports which appear from time to time in the current medical literature, one would suppose that one of the first things which should be done when called to see a sick child would be to change the food. A great many cases occur in general practice where simply changing the food of the child appears to work wonders, and presto, the doctor is imbued with the idea that the food did the work for the baby. This, we regret to say, is too often a mistaken notion. When a child is ill, and it occurs to the mother or the physician in attendance that the food does not agree, the rule is to make a change. It never occurs to either interested party that this change involves a thorough re-arrangement of the food utensils, and had this precaution been taken with the food in use, in all probability the same results would have followed. By changing the food, the cooking utensils have been cleaned, everything has been put on a clean basis, and before they get a chance to become dirty again, the child recovers. This peculiarity was recently observed by the writer. The baby had an irritable stomach; everything which entered it seemed to undergo a species of fermentation, but an examination of the food supply and its method of preparation furnished the clue to the unhappy condition of affairs existing. The particular food, one of the most popular on the market, had been left exposed to the light and air, and, as a consequence, micro-organisms had

found access to it, with the result that these persistent microbes had poisoned the baby's stomach, and the condition was maintained as long as the food was continued.

### *THE VAGINAL DOUCHE.*

A number of our exchanges have reproduced from time to time during the past six months, a brief synopsis of a Philadelphia contributor relating to the proper method of using the vaginal douche. This extract goes on to say that in all cases the douche should be taken in the recumbent posture, for only by this means can the vagina be properly distended, and the debris removed. Now, it is a fact that not more than one woman in a hundred will obey this instruction, and it is just as well that they do not, because it would bring them an untold amount of harm. The very opposite should be the rule, namely, that the vaginal douche should always be taken in the erect posture, because this is the only position which permits the uterus to empty itself of the water entering the cavity. A vaginal douche taken in the recumbent posture means the entrance into the cavity of the uterus more or less of the contents of the vagina with its irritating secretion, and it not infrequently happens that this is the sole cause of various forms of uterine affections with which we are all too familiar. It may be safely set down as a fundamental truth, that the use of the vaginal douche in the recumbent posture means an increased business for the gynecologist, and it is not beyond the range of possibilities that this was the very reason which suggested the publication. Let the intelligent and practical members of the medical profession take this theory into consideration, let them make a practical test of the question, and then report the results of their observations for the benefit of the profession who are not possessed of sufficient temerity to thus try experiments on their patients.

### *NUCLEIN FOR TYPHOID FEVER.*

At the recent meeting of the Mississippi Valley Medical Association, held in Detroit, Michigan, in the early part of September, the writer had the pleasure of presenting a paper entitled, "The Abortive Treatment of Typhoid Fever," in which he took occasion to elaborate the physiological role of the micro-organism associated with this disease, showing how its influence could not be counteracted wholly by insoluble intestinal antiseptics, but required the administration of internal remedies. Intestinal antiseptics are of value only through their local influence, since they do not penetrate the diseased areas; antiseptics given internally are of value only in a general way, being excreted through the various channels, but they may be of apparent advantage through their influence upon metabolism, and possibly by reason of being eliminated through these diseased areas, and ultimately finding an outlet through the intestinal tract, guaiacol being cited as an apt illustration.

In the paper referred to it was claimed that typhoid fever could be aborted, that is, arrested, at any stage of its progress, although it was pointed out that this disease was not usually, after the first few days or a week, a simple specific affection, but a mixed or composite affection, similar to diphtheritic cases. By the administration of nuclein conjointly with copper arsenite the disease, that is, its specific character or nature will disappear, and there remains but a simple fever which subsides as soon as the emunctories are permitted to perform their proper functions. Both remedies can be given internally or hypodermatically, the former in doses of one-third to one minim every two to four hours and the latter in doses of one-hundredth of a grain four times a day. By this plan of medication any case of typhoid fever, provided the patient is not practically moribund, can be brought to an abrupt termination within from twenty-four to seventy-two hours, and

that, too, without danger of relapse or complications. In administering these remedies hypodermatically, the writer suggests the following plan to be carried out for the first forty-eight hours, when the probabilities are that further specific medication will be uncalled for: Dissolve a tablet containing one grain of copper arsenite in four ounces of boiled or sterilized water, and to this add dilute hydrochloric acid drop by drop until the mixture is perfectly clear. Thirty minims, or one syringe-full of this solution, carries approximately one milligram (grain  $\frac{1}{60}$ ), and this amount can be introduced subcutaneously at some indifferent point twice a day. The nuclein solution (the animal nuclein only), should be given in doses of two to five minims (five to ten drops), mixed with a sufficient quantity of sterilized water to make a syringe-full, twice daily, the injection to be made at some indifferent point.

From the foregoing, it will be seen that this method of treatment can be introduced in any case without in the least disturbing the routine treatment, and thus the effects of treatment will become manifest without in any manner endangering the prospects or the condition of the patient.

**DANGERS TO SOCIETY.**—The International Medico-Legal Congress, which met in New York during the first week of this month, provided three startling subjects for newspaper discussion. Dr. PAUL GIBIER pointed out the dangerous use to which biological products might be put criminally; poisons of inorganic matter are readily traceable, but toxins and cultures of bacilli can be employed by the assassin with comparatively no risk of discovery. The thought is pregnant with potentiality. Hypnotism was discussed from a legal standpoint, and Dr. HOWARD, of Baltimore, illustrated the possibility of influencing innocent persons to unwittingly commit crimes, by citing two cases of his own suggestion: his servant stealing from a neighboring physician, and a bank cashier stealing \$5000. Dr. HOWARD would seem to stand in need of restraint in his home community. Finally Vice-president ALBERT BACH, in arguing that "a physician has the right to administer drugs to end the agony of a patient," startled his hearers, and the readers of newspapers the following morning, by stating that he had known of physicians so ending life. Mr. BACH has been promptly requested by the daily press, to divulge the facts specifically so that physicians guilty of such criminal practices may be brought to justice.

Altogether this Congress has made its mark, and the three subjects here enumerated will be widely discussed for many months to come in newspapers and magazines everywhere.

## Correspondence.

### ALLIED COAL-TAR DERIVATIVES.

TO THE EDITOR,

*Sir*:—As the AMERICAN THERAPIST seems to be well posted on the great number of new drugs, I wish to ask if Paraphenyldiamin and Phenylene-di-amine are one and the same drug? I wrote to a firm in New York for the former, and in reply they say, that they can supply me with the latter, that is: spelling it as above. The question is, are they identical, but spelled and pronounced differently. An answer will oblige, Yours,

F. T. Field, M. D.

Elroy, Wis., Aug. 26th, 1895.

*Answer.* — Para - phenylendiamin, or para-diamidobenzol,  $C_6H_4 \begin{Bmatrix} NH_2 \\ NH_2 \end{Bmatrix}$ , is obtained by reduction of dinitrobenzol with zinc and sulfuric acid. It is a coal-tar coloring matter, black, lately used to some extent by hair-dressers to dye natural human hair, and also by furriers in coloring furs and skins. It occurs in greenish black crystalline powder form, usually lumped in hard chunks; rubbed up dry it colors red; it is readily soluble.

An analogous product is methylene blue, which is produced "by oxidation of dimethyl - paraphenyldiamin by ferric chloride in the presence of the necessary quantity of sulphuretted hydrogen" (Helbing); methylene blue is one of the best stains for malaria parasites, and is employed therapeutically in  $\frac{1}{2}$  to  $1\frac{1}{2}$  grain doses for intermittent fevers, and also as an analgesic in nervous affections. It is not popular.

Phenyl-hydrazine, or phenyl-diamin,  $C_6H_5.NH.NH_2$ , is a white crystalline body, melting at  $35^\circ C.$ , and rapidly discoloring on exposure (on which account it is generally yellow in color when commercially supplied). It is the basis of many new remedies, such as antipyrin, agathin, hydracetin (or pyrodin), etc.; it is strongly caustic, and even its vapor will cause painful skin irritation. It is too toxic for medicinal use, but is employed in Fischer's test for sugar in the urine.

We take pleasure in answering enquiries of this nature, and hope our readers will avail themselves frequently of our facilities for supplying facts and deciding similar questions.

## Current Literature.

**THE THERAPEUTICS OF SYDENHAM.**—In the *Glasgow Medical Journal* for April, Dr. Dugald Mitchell discusses "The Therapeutics of Sydenham." That great physician sought above all to impress on his contemporaries the fact that more could be left to Nature than they were in the habit of leaving her. Sydenham insisted that the end would be oftener attained "if Nature were not diverted by ignorant men from the straight way that of herself she holdeth." He was wont to say, "The sick man dies of his physician," thus anticipating an epigram of Lord Byron's. The practical part of Sydenham's mind is well shown in the following passage: "I have ever held that any accession whatever to the art of healing, even though it went no farther than the cutting of corns or the curing of toothache, was of far higher value than all the knowledge of fine points and all the pomp of subtle speculations—matters which are as useful to physicians in driving away diseases as music is to masons in laying bricks."—*Med. Record.*

**PHYSIOLOGICAL ROLE OF THE THYROID GLAND.**—This subject has been summed up by Notkine (*Medical Week*) as follows: Total thyroidectomy causes death of the animal, whatever its habits or the nature of its food. The death of an animal after thyroidectomy, is due to the accumulation of one or more poisons in the system. This condition of toxemia is termed cachexia strumipriva. The true auto-intoxication is much more marked when the animal is not fed.

The thyroid gland secretes a substance capable of decomposing or neutralizing toxic substances developed by the tissue changes in the body. Exactly the nature of these poisons, and of the antitoxin produced by the thyroid gland, has not yet been determined.

The author has succeeded in extracting from the thyroid gland, a poisonous substance which produces all the symptoms

of cachexia strumipriva. This substance, when injected into the body of an animal, first appears to be stimulating, then paralyzing. Emaciation occurs if the doses are too small to be immediately fatal.

The author suggests that the colloid substance contained in the cystic poisons, is not a secretion from the thyroid gland, but is an accumulation of waste material within the body. It is the duty of the thyroid gland to rid the blood of the poisonous substances in it, by storing them up in the cells of the glands where they are neutralized and rendered harmless, then eliminated. — *Medical Brief*, August 1895.

**TREATMENT OF BURNS WITH THIOL.**—In the May number of *La Clinique* there is an article on this subject in which the writer says that according to A. Bidder, of Berlin, thiol is one of the best applications in the treatment of burns of all degrees. Bidder first washes the burned part with a weak solution of corrosive sublimate and then removes the cuticle hanging loose, as the remnants of ruptured blisters, taking care not to touch those of which the walls are still intact. After dusting the burn with powdered boric acid, the entire surface of the burned region and the healthy skin around it are painted with a solution of equal parts of thiol and water; finally, a layer of greased cotton is laid on the burn and kept in place with a bandage. Thiol allays the pain very rapidly and arrests the hyperemia of the skin. Part of the contents of the blisters is absorbed and the rest becomes dry in the form of semi-transparent, amber-colored crusts which are easily detached, leaving a completely healthy skin. At the end of eight days the dressing is removed. The rapidity of the cure varies according to the degree of the burn. In burns of the first and second degrees it is generally rapid. In those of the third degree the cicatrices which are formed under the dressing of thiol are smooth and show no tendency to retraction. — *N. Y. Med. Journal*.

**THE TREATMENT OF HEMORRHOIDS.**—Dr. Claude A. Dundore has an interesting article on the treatment of hemorrhoids in *Mathe's Quarterly*, in which he presents the following conclusions (*M. and S. Rep.*), based upon a large correspondence with American surgeons:

1. The ligature is the safest method, as there is less likelihood of its use being followed by hemorrhage, strictures, or ulcers.

2. The clamp and cautery causes less pain and a shorter convalescence, but hemorrhage and stricture of the rectum may often follow its improper application.

3. Whitehead's method should be limited to those cases in which the entire circumference of the anus is involved. In ordinary cases of one or more hemorrhoids it should never be used.

4. Simple dilatation of the sphincter, injection of carbolic acid, and Mauley's method are merely palliatives.

**COPPER ARSENITE IN THERAPY.**—A number of cases are described by Dr. A. Hedlicka in which he employed copper arsenite locally, with almost universal success in the various acute and sub-acute inflammations of the mucous membranes, attended with pain, suffusion and more or less watery discharge. He found it most efficient in solutions of 1:50,000 to 100,000. These solutions are easily made by dissolving a  $\frac{1}{100}$  grain pellet in  $1\frac{1}{2}$  ounces of water; they are applied at intervals rarely longer than an hour (bladder, urethra and nose), and frequently not longer than from ten to fifteen minutes.

The remedy is rather indifferent in cases where the discharge is thick or persistent unless the affected surface be previously thoroughly cleansed.

The duration of the treatment ranged from a few hours to two or three days in mild cases, from several days to three months in severe cases. The author pretends to have never failed, relief being always instantaneous; and other remedies were rarely needed.—*N. Y. Med. Jour.*

**THE EFFECT OF FOOD ON THE ABSORPTION OF DRUGS.**—Th. P. Mainin, in a study of the absorption of various medicaments in the empty and full stomach, came to the conclusion that absorption was very rapid when the stomach was empty, and that when food had been taken it was much slower. In one case, it did not occur for eighty-five minutes, and in another, for two hundred and fifteen minutes. Hydriode of potassium appeared in the saliva and urine, either at the same time, or three or five minutes earlier in the former, the excretion in both ceasing at the same period. This is probably due to the unequal action of the kidneys in different individuals.

Sodium salicylate cannot be discovered in the urine by the ferric sesquioxide test. From the experiments of the author, it appears that the excretion of medicinal substances corresponds to the rapidity of their absorption. The delay in absorption after a full meal, is due to the mixing of substances with the food, and their separation from the stomach walls, rather than to the increased blood pressure in the organ incident to digestion.—*Journal Medical Sciences.*

**THE ABSORPTION OF FERRATIN.**—Marfori (*Therapeutische Monatshefte*, March 10, 1895), states that artificial ferratin differs from other preparations of iron in being readily assimilated, and in being identical with a form of iron naturally found in the liver and other organs. The quantity of ferratin absorbed will depend on the condition of the gastro-intestinal tract. The greater its decomposition in the stomach and bowel, the less the absorption. The sulphuretted hydrogen in the intestine decomposes ferratin. Marfori found that after the use of saline purges, which disinfected the bowel, 13.7 to 41.68 per cent. of the ferratin was absorbed. Schniedeborg believes that under ordinary conditions only a small amount of ferratin is absorbed. Marfori performed the following experiment on three dogs to determine the amount of ferratin absorbed. After

the bowel had been emptied by purgatives, the animal was placed upon an exclusive milk diet, and after several days ferratin was administered. The lower bowel was then emptied by enema. To the first dog 140 milligrammes of ferratin were given; 104 milligrammes were recovered from the stomach and bowel, the amount assimilated being 36 milligrammes, or 25 per cent. To the second dog 91 milligrammes were administered; 81 milligrammes were found in the stomach and bowel, the amount absorbed being 10 milligrammes, or 10.9 per cent. To the third dog 135 milligrammes were given; 94 milligrammes were recovered, the amount absorbed being 41 milligrammes, or 30.3 per cent. From these experiments the writer believes that considerable quantities of ferratin may be absorbed even under ordinary circumstances.

These results, according to the writer, have been confirmed by Jacquet and Kündig. Fillippo de Fillippi asserts that ferratin, unlike other chalybeate preparations, is absorbed from the intestine *en masse*. Marfori refutes the statement made by Langaard and Kobert, that ferratin under normal conditions is decomposed in the stomach.—*Univ. Med. Magazine*, Sept., '95.

**PHENOCOLL IN PREGNANT WOMEN.**—M. Titone, of Palermo (*Rif. Med.*, November 24, 1894), in view of the well-known ecboic action of quinine, was led to try phenocoll in pregnant women suffering from malaria. The results were such as to satisfy him that while the drug is efficient as a remedy for malaria, it has no action on the uterus. He gave it in doses of 1½ gramme, divided into four cachets, to be taken according to the Roman method, that is to say five, four, three, and two hours before a febrile paroxysm is due. The drug was given in this way till the attacks ceased, and in all the cases pregnancy went on to term without any of the uterine contractions, foetal movements, or slight hemorrhages due to partial detachment of the placenta, such as are

observed when quinine is administered to pregnant women. The author gives details of four illustrative cases, but he has used the drug in many more with equally beneficial results.—*British Medical Journal*.—*Canad. Practitioner*.

**THE TREATMENT OF TUBERCULOSIS.**—Dr. R. Seifert places creosote in the first rank among curative measures, but states that in large doses it is no longer beneficial, it is caustic, coagulates albumin, and is poisonous. It irritates the organs of digestion and thus interferes with nutrition, so important in this disease. The taste of the drug in the mouth is very persistent. As a substitute creosote carbonate is recommended in daily doses of fifteen to forty-five minims, which on account of its insolubility can be administered in capsules. It is absorbed more slowly, and thus a continual and milder influence is kept up.—*Deutsche Medicinal-Zeitung*, 1895, No. 4.—*Amer. Journ. Med. Sciences*.

## Book Notices.

**CLINICAL LECTURES ON DISEASES OF THE NERVOUS SYSTEM**, delivered at the National Hospital for the Paralyzed and Epileptic, London. By W. R. GOWERS, M.D., F.R.S. Cloth, octavo, 280 pages. Publishers: P. BLAKISTON, SON & Co., 1012 Walnut St., Philadelphia, Pa. (Price, \$2.00.)

The name and fame of the author guarantee an interesting and valuable volume; the reader will enjoy the first perusal as he would any attractive literary work, for the author speaks in these lectures as if before you and his class—easy, graceful, didactic; and subsequently the book will be cherished as a mine of practical hints and a guide to study.

The volume is made up of twenty lectures, which may be enumerated here as best illustrating the scope of the course; they are in due order: The Principles of Diagnosis of Diseases of the Nervous System, Mistaken Diagnosis, Argyria and Syphilis, Syphilitic Hemiplegia, Bulbar

Paralysis, Facial Paralysis, Facial Contraction after Palsy, Acute Ascending Myelitis, Locomotor Ataxy (2), The Foot-Clonus and its Meaning, Syringo-Myelia, The Treatment of Muscular Contraction, The Infantile Causes of Epilepsy (2), Neuralgia, Lead Palsy, Saturnine Tabes, and Optic Neuritis (2).

There is no further index to the book. The object is evidently to give the reader and student the skeleton lecture of a post-graduate course, sketching a subject complete and indicating the direction of detailed study. It is admirably done, as already stated above, and the reader will find each subject presented so attractively that the desire for the outlined study is stimulated and its effect enhanced.

The mechanical features of the book are of the highest excellence, fine paper, perfect press-work, and modern style, substantial binding. We trust this notice may prompt many of our readers to procure the work; we guarantee satisfaction.

**THE POCKET MATERIA MEDICA AND THERAPEUTICS.** A Résumé of the Action and Doses of all Official and Non-official Drugs now in common use. By C. HENRY LEONARD, A.M., M.D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynæcology in the Detroit College of Medicine, etc. Second edition, revised and enlarged; cloth, large 16mo., 367 pages, price, post-paid \$1.00; Detroit, 1895. The Illustrated Medical Journal Co., Publishers.

The second edition of this therapeutic work appears with 67 pages added to it, besides typographical errors corrected, etc. A new and complete cross-index has been prepared, which renders the quick finding of a non-familiar drug possible. This is an important feature lacking in many ready-reference books. It is a "down-to-date book," containing new remedies of latest introduction, although even a cursory examination shows that many new agents of legitimate standing have been omitted.

The descriptive arrangement of the drugs is as follows: Alphabetically the

drug, with its pronunciation, (official or non official standing indicated), genitive case-ending, common name, dose and metric dose. Then the English, French and German synonyms. If a plant, the part used, habitat, natural order, botanic description, with alkaloids if any; if a chemical, its symbol, atomic weight, looks, taste, how found, its peculiarities. Then the action and uses of the drug or compound, its antagonists, its incompatibles, its synergists and then antidotes. Then follow its official and non-official preparations with their medium and maximum doses. Altogether it is a handy volume for physician, druggist, or student, and will be frequently serviceable if in one's possession.

#### PAMPHLETS RECEIVED.

Herniotomy—Osteotomy. By SAMUEL E. MILLIKIN, M.D., of New York. Reprint, 1895.

Treatment of Asiatic Cholera. By ELMER LEE, M.D., of Chicago. Reprint, 1895.

Theoretical and Practical Considerations on Whooping Cough, with an Inquiry into the Therapeutical Value of Cocaine in Upwards of 300 cases. By S. RUSSELL WELLS and L. J. GERARD CARRE, of London. Reprint from *Lancet*, 1895.

Hæmatoblasts and Blood Platelets. By Dr. M. L. HOLBROOK, of New York. Reprint, 1895.

#### ANNOUNCEMENTS.

KEIL'S MEDICAL, PHARMACEUTICAL AND DENTAL DIRECTORY.—The publisher of this excellent work, Mr. GEORGE KEIL, of 1715 Willington Street, Philadelphia, announces the early issue of a fourth edition, to include the states of Pennsylvania, New York, New Jersey, Maryland, Delaware, and the District of Columbia.

Having used the third edition of Keil's Directory for several months past, the writer can add his testimony as to its accuracy, fulness and general reliability. It contains a vast amount of valuable information that will prove exceptionally useful to physicians having a large or even a moderate correspondence.

STANDARD SCHOOL BOOKS.—Messrs. FUNK & WAGNALLS, publishers of the Standard Dictionary, favorably noticed in these



columns, have just announced their intention of publishing a series of educational books. Included in their preliminary announcement of works in preparation should be mentioned the following: The Student's Standard Dictionary, the Student's Standard Synonyms, the Student's Standard Speller, together with a complete series of Standard Readers.

In the preparation of the above works the publishers have availed themselves of the services of the best educators both at home and abroad, with many of whom they had been brought into direct contact through their services in making the great Standard Dictionary. On the appearance of these books from the press, we hope to be able to give our readers more extended information in respect to their merits.

P. BLAKISTON, SON & Co. (1012 Walnut St., Philadelphia, Pa.) announce that they have in preparation for early issue an authorized translation by Dr. ALBERT B. HALE, of Chicago, of a HANDBOOK OF DISEASES OF THE EYE, by Dr. A. EUGEN FICK, of the University of Zurich. This is one of the most complete, thorough, and compact of text-books. Among its other merits it contains a number of very handsome colored illustrations, not of rare or unusual cases, but of practical matters that will greatly aid the student and be of much service to the practitioner. The retail price will be from \$3.00 to \$4.00. Prospectus supplied by the publishers on request.

## Miscellany.

**RAPID ACCLIMATIZATION.**—The views of some teachers of the doctrine of evolution (says *Modern Medicine*) respecting the enormous time required for the acquirement of special physical characteristics under the influence of climate and other conditions, are somewhat upset by the following, which we quote from the *New York Medical Journal*:—

"An example of the adaptation of animals to circumstances is given in the *Lyon Medical* for December 6. In America, says the writer, there are large underground warehouses for the preservation of meats, poultry, and fish, where the temperature is maintained at about three degrees below the freezing point. It was thought that this intense cold would cause the disappearance of rats and parasites, and in fact, in the beginning, they died. Gradually, however, they be-

came accustomed to the intense cold, and were soon covered with a very thick fur extending from the nose to the tip of the tail.

"An experiment was then made with cats, but they all succumbed to the cold, until a cat with unusually thick fur was brought in. This cat lived, her fur became still longer and heavier; and one day she gave birth to seven kittens, which were the object of great care. At the present time these cats are entirely acclimated, and have numerous descendants.

"This fact, says the writer, calls to mind the savage cats in Canada, which have short tails, enormous eyebrows and whiskers, and very thick fur. These cats, when brought out on a hot day, die, sometimes in a few hours, under the influence of the light and heat."

"**DRUGS MANY; REMEDIES FEW.**"—This is the title of an editorial in *The Hospital*, in which occur many pregnant aphorisms, some of them credited to Sir William Broadbent, of which we quote a few as worth remembering:

"New drugs are added every day for the benefit chiefly of those who do not know how to employ the old ones."

"Many men never set themselves to prove experimentally for themselves the value of any drug or drugs, and so they never come to a condition of mind in which they employ remedies with confidence, precision and success."

"It is the ruin of modern medicine that men do not use their minds and base their work on the immovable foundation of their own proved convictions."

"The old which is tried and proved shall be loyally preserved; well-known drugs shall be retained, and the new shall always, in every case, and by every individual, be subjected to continuous and competent examination and proving."

"The third-rate practitioner, who has not gained a just self-confidence by reason of thoroughness and success in practice, always hankers after the reputation of being thoroughly 'up to date'."

**FORESTS HAVE AN important hygienic influence.** In warm countries, when a forest is cleared away, fever always makes its appearance, while if, in insalubrious districts, trees are planted in quantity, sickness disappears. Thus the Roman campagna and the Tuscan marshes, where luxuriant forests are now growing, have almost lost their traditional unhealthfulness.

Another important hygienic factor of the forest is the fact that ozone exists in unusually large quantities in their neighborhood. This fact, lately established by Fernow, has been held by him to show that a forest constitutes an important barrier against the approach of epidemics and infectious diseases.—*The Literary Digest*, from *Cosmos*.

**THE WILLIAM F. JENKS memorial prize of five hundred dollars has been awarded to Dr. A. Brothers, of New York City** (a subscriber of this journal from the first issue), Instructor in the Post-Graduate Medical School and Hospital, for his essay on "Infant Mortality during Labor, and its Prevention."

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### ZYMOTIC DISEASES AND THEIR MODERN TREATMENT.

#### III.

By J. LINDSAY PORTEOUS, M.D., F.R.C.S., ED.  
Physician to Saint Joseph's Hospital, Yonkers, N. Y.

*Pertussis.*—Whooping-cough, chin-cough, kink-host, tussis convulsiva—such are some of the synonyms by which this well-known contagious and infectious disease, characterized by a peculiar cough occurring in paroxysms terminated by vomiting, is known. Sprengel seems to have traced the disease to the year 1510, when it was endemic in Paris. Gibb states that it was known traditionally to the French Canadians for over three centuries. Doubtless, Hippocrates and others, prior to the Christian era, described a disease much resembling whooping-cough, but no notice was taken of the characteristic “whoop.” Down to the 16th century, Arabian, Italian and French authorities have described it, but nothing of importance was written about it till Willis, in the seventeenth century, described it in a way that it can be recognized as a disease of the present day. His definition of the malady was as follows: “*Tussis puerorum convulsiva seu suffocativa et nostro idiomata, chin-cough, vulgo dicta.*” The last three words indicate that it must have been well-known in England at the time he wrote about it. In the fifteenth century, Mezeray gave the name of “coqueluche” to a disease which resembled in every way the whooping-cough of the nineteenth century. The only part of his description of the disease which seems to have been omitted was the “whoop.”

So much for the history of pertussis. As to the primary cause of this disease, I can find no mention made by any of the earlier writers, but I once saw a child born with it, and I understand that others have seen the same. How the disease was contracted was a mystery. More recent writers consider that “a specific morbid poison produces slight fever which, for the most part, subsides on specific or secondary actions being established. There is catarrh, followed by a peculiar cough and vomiting, due to the irritation of the *vagus nerve* by the specific poison” (Aitken). Later, the irritation of the *vagus nerve* has been considered as not due to a poison, but to a microbe.

The treatment of this disease was, free purgation, a blister to the throat, asafoetida and sedatives, bleeding and nauseating doses of ipecac. Some of these are still in use. Many of us have known of mothers taking the little sufferers to a lime-kiln and holding them close to the outlet so that they might inhale the fumes. Now, in the present age of microbe theory, does not this last mode of treatment seem most rational? Another “mother’s cure” is taking the child out to sea. Here again, ozone plays the part of microbe killer. Children are ordered to play near gas-works, or near the refuse heaps from gas-retorts, so that they may inhale the vapors of the ammoniacal compounds. If we accept the germ-theory, these certainly are the most rational modes of treating the disease.

I would like, however, to mention one drug which has often come to my aid in serious cases of pertussis. How it is beneficial, I am unable to determine; it may be a bactericide, or merely an anti-

spasmodic. It is an alkaloid named ouabain, obtained by crystallization from the watery extract of the roots of the ouabaio, a plant nearly related to the *Carissa Schemperi*. It is a deadly poison, and is used by the Somalis of East Africa to poison the tips of their arrows. I could quote many cases cured or greatly relieved by this remedy.

The bromides for a time were favorite remedies. Spraying with carbolic solutions had its day. Recently, M. Labbé and M. Oudir have used ozone in the treatment of whooping-cough with markedly good effect. They consider whooping-cough a microbial affection, and knowing the antiseptic power of ozone, they surmised that it would be beneficial in that disease. They found from actual experience that the duration, the intensity and the number of the attacks of cough were lessened by its use. This treatment, as already mentioned, in another form, was familiar to our grandmothers. They sent children on a short ocean voyage, and their grand-children do the same thing now. Good effects were visible, and why? Because the little sufferers inhaled the purest of ozone with every inspiration of the clear and health-giving ocean breeze. The French, ever in the front rank, are establishing throughout the country, sanatoria, especially for the study and treatment of whooping-cough.

It is evident, and we must admit it, that we have no specific for this disease; but if the microbe theory is correct, we are within telescopic distance of a pretty certain remedy. The chief difficulty now is, which of the many microbe destroyers will kill this particular microbe without injuring the little patient?

*Small-pox.*—Let us now consider one of the most loathsome diseases with which we are acquainted. Disgusting to the patient, to the physician and to the nurse, and almost to the neighborhood. I mean small-pox, or variola, a disease which may be defined as a specific, contagious,

infectious, eruptive fever, the eruption passing through the stages of pimple, vesicle, pustule and lastly, scab. It is not very readily contracted if great cleanliness is observed; the infective distance has been estimated at six feet, but we question very much if it can be contracted without contact with some of the discharges of one suffering from it. For all practical purposes, it may be divided into two forms, the *distinct* and *confluent*.

The origin of this disease is uncertain. Some writers try to prove that the sixth plague of Egypt was small-pox. Baron, in his life of Jenner, is one of these, and he founds his belief on a passage from Philo, the Jew, who lived in the first century. The passage alluded to is from Philo's view of the plague, and is as follows: "Clouds of dust being suddenly raised and striking both man and beast, caused ill-looking ulcers over almost the whole skin, so that immediately, an efflorescent eruption made its appearance on the surface of the body which became swollen in purulent pustules, and which you might almost think, boiled in consequence of some sudden heat; but if they suffered thus much in body, they suffered more, or certainly not less in mind, being oppressed and worn down with pain and anguish, as there appears reason, on account of the inflammation and ulceration. For, to one regarding those cases in which the pustules were scattered over the body and limbs and were together in one mass, it appears as if they were a continued ulcer from head to foot." Willan, the great dermatologist, from the description, concluded that this plague was variola.

Early in the tenth century, Rhazes, in his treatise, entitled, "*De Variolis et Morbidis*," gives the first account of a disease which was undoubtedly the small-pox of the present day. He quotes from an Alexandrian physician, named Ahron, who lived in the end of the fifth and beginning of the sixth centuries, who had given a fair description of the disease. Rhazes had seen it in the East before the Saracens

had brought it into Europe, and his account of it was probably the only one given during the next five hundred years. In the historical writing of Procopius (*De Bello Gothico*), in the middle of the sixth century, a disease resembling small-pox is mentioned. It is said to have begun in the year of our Lord, 544, at Pelusium, in Egypt, and spread to Constantinople. This corresponds to the time assigned to its first appearance by writers of medical books, viz., A. D. 569, the year of the birth of Mahomet (Gregory). In that year, Abrahah, the viceroy, appeared before Mecca with an Abyssinian army, but soon had to raise the siege on account of the breaking out of a disease similar to variola. When Bruce, the African traveller, was wandering through Africa he found a manuscript which strengthens the opinion that it first appeared in Egypt and Arabia in the middle of the sixth century (Gregory).

Travellers tell us that there is a tradition in the East that men contracted small-pox from the camel. Now, we know that all diseases communicated to man from the lower animals are only communicated by inoculation, not by infection; and even when man has been inoculated from the lower animals, he in turn cannot give it to his fellow-man in any other way than by inoculation. For example, hydrophobia, glanders or cow-pox, cannot be passed from one man to another by means of infection, or even contagion.

In 1847, there was an epidemic of variola among sheep in England. Experiments were made to test the power of the sheep virus in producing small-pox in man, but they proved useless. A pock was formed which resembled the pock of cow-pox, but nothing more. As to the exact manner in which this distressing disease was originally communicated to man, we are in ignorance, and likely to remain so.

Auche and Jonchères have published, so late as June of this year, an account of their researches into the toxicity of the urine in small-pox. They have proved

that the quantity of urine is sufficient during the eruptive stage; that it is diminished again during defervescence. The latter increase does not always occur on the same day as defervescence. The toxicity undergoes the same variation as the quantity. During the eruption it is normal. It diminishes during suppuration along with the rise of temperature and remains stationary for several days before defervescence. At this stage the toxicity may be slight; during defervescence it is increased, and is at its height on the second day of defervescence. If very marked, it lasts but a short time. It may again diminish with febrile complications. The delirium, so often seen in this disease, is probably due to this urotoxicity. The urotoxic discharge is to be attributed to the sudden elimination of toxic substances accumulated in the body. In case of hemorrhagic variola, the curve representing the urinary toxicity falls, up to the time of death.

Let us now pass on to a consideration of the treatment of this disorder, ancient and modern. For hundreds of years, the treatment was a continued thwarting of Nature. That great panacea for all evils, *bleeding*, was resorted to. Opiates, masks, heating alexipharmics and blisters were resorted to; ointments, lotions to prevent pitting, were often the sole remedies applied. John, of Gaddesden, boasted that his treatment of the son of Edward the Second of England pulled him through. The treatment adopted consisted in putting the patient in a bed surrounded by red hangings, covered with red blankets and a red counterpane; his throat was gargled with red mulberry wine and he was made to suck the red juice of pomegranate. This may seem the treatment of either a knave or a fool, but it is only very recently since some authorities advocated the use of red window curtains or red glass windows in the sick chamber to prevent pitting. Great men like Sydenham and Huxham advocated bleeding; others heaped the bed-

clothes on and shut out every breath of air and forbade any ablution or change of body or bed-clothes (J. F. Marson).

Measles at this time was looked upon as only a modified form of small-pox, and patients suffering from both these diseases could often be seen huddled together in some small, airless hospital. But Sydenham differentiated these diseases. Modern pathologists may laugh at such a mistake being possible, but ere many years pass o'er our heads our present pathologists may find that they have made quite as bad mistakes.

Modern knowledge has shown that isolation, to prevent the spread of disease, must be thorough and complete; no half measures avail anything. Inoculation as a preventative, was long practiced by the East Indians and Chinese, but not until the year 1717 was it employed in the West, when Lady Mary Montague used it successfully in her own son. But inoculation proved fatal in many cases, and became a source of contagion. A law was, therefore, passed prohibiting its practice.

For many years the treatment, or rather the prophylactic treatment, remained *in statu quo*. In 1798, Edward Jenner, whose very name stirs up within us a feeling of reverence and pride, published an article which threw a great light upon the subject of the prophylactic treatment of smallpox. To Jenner,\* therefore, are due the thanks of humanity at large for having bestowed the means of so modifying the attacks of this most loathsome disease.

It is interesting to compare the mortal-

\* NOTE.—Since writing the above I have read the following in the *British Medical Journal* of October 5th, 1895: On a tombstone in the little village of Worth Matraven, Dorsetshire England, is an inscription as follows: "Sacred to the memory of Benj. Jesty Downstay, who departed this life April 16th 1816. Born at Yetminster in this county. A honest and upright man. He was the first person (known) that introduced cowpox with inoculation, who from great strength of mind made experiments from the cow on his wife and two sons in the year 1774."

The results of the experiments are not made known. This discovery does not detract from the greatness of Jenner, who systematized the discovery and made it available for the good of humanity at large.

ity rate of those who have been protected by vaccination with that of those unprotected. In the epidemic which occurred in England in 1838, out of 396 persons attacked who had not been protected, 157 died, or 1 in 1.52; while out of 298 attacked, but previously vaccinated, only 31 died, or 1 in 9.61. Statistics compiled from the records of epidemics of a large number of years prove that vaccination is a greater modifier than even a previous attack. We find that the mortality of those attacked, who have neither had a previous attack nor been vaccinated, is 1 in 4; of those having had the disease before, 1 in 10; and of those having been vaccinated, 1 in 15.

The various forms of this disease, viz.: confluent, semi-confluent and discrete, have a comparative mortality as follows: Confluent, 1 in 2; semi-confluent, 1 in 10; discrete, 1 in 19. But the modern mode of treatment, namely, free circulation of air, light clothing and equable temperature in the sick room, have tended to still further reduce the mortality, and it is even stated that when vaccination has been effectually performed, the mortality of recent years has been reduced to two per cent. This disease is extremely fatal in the extremes of age, and to the negro and oriental. No disease with which we are acquainted requires less treatment medically, or more, hygienically, than smallpox. Alleviate symptoms such as vomiting and diarrhoea; anoint with carbolized oil or cold cream; exclude air to prevent pitting. This may be done by smearing the face with a paste made by dissolving gutta-percha in chloroform, or painting it with collodion. Large doses of ammonium bromide will procure sleep better than any drug with which we are acquainted. The writer has had large experience in the treatment of smallpox and warns all those who may have charge of such patients to be prepared to treat, at any moment, edema of the glottis and ophthalmia, which often suddenly appear. It is well to remember that the infection remains until the last scab has fallen off.

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**THE RESOURCES OF CLIMATE IN  
HEALTH AND DISEASE, WITH  
SOME REMARKS ON SPECIAL  
CLIMATES.**

(THIRD PAPER.)

By SAMUEL S. WALLIAN, A.M., M.D.

Before discussing the character and varieties of disease, either induced, aggravated or prolonged, on the one hand, or prevented, ameliorated or "cured," on the other, through the medium of climatic influences, it is essential that the various factors which singly or combined effect these contrary and diverse results, as regards the character of a given climate, should be more thoroughly studied and more clearly defined. The leading features have already been briefly adverted to. They demand to be more fully analyzed, and to be dwelt upon more in detail.

Writers on the subject of climate, perhaps more from habit and precedent than from judgment, assume that latitude is the dominant factor in the determination of climate, whereas it is in fact a most unreliable guide to the real climate of any given locality. It would be more rational to adopt *isothermometry* as a guide. Parallels of latitude are both arbitrary and inflexible, as well as imaginary. They originated with the mathematicians and not with the meteorologists. The *isotherms* have no possible respect for mathematical precision, tropic circles or theoretical parallels. For example, the temperate zone refuses to be outlined by square and compass, while the true Tropic of Cancer is nowhere a right line but everywhere an eccentric or a fluctuating vagrant.

For the sake of convenience and uniformity, or in a mere spirit of conformity, meteorologists and climatologists have acquiesced in these inexact classifications and subdivisions of the mathematical geographers, otherwise there would have been no necessity for the construction of

isothermal charts, a glance at which, in view of the foregoing, will at once suggest a re-statement of the outlines of physical geography, and a radical revolution in the basis system of projecting outline maps of the earth's surface. All the zones should be theoretically, as they are already actually, bounded by *isotherms*. Thus all the actual zones vary in width from point to point, and in certain situations this variation is so great as to be almost unaccountable. An isotherm projected across this continent would intersect a given parallel several times in passing from ocean to ocean, deviating so sharply at times as to seem contradictory and unreliable. For this reason the climatologist of the near future cannot logically have much to do with the subject of mere mathematical latitude. Parallels of latitude would have some significance to others than the mere expert in mathematics if the earth revolved with exact mathematical precision, on an axis strictly perpendicular to its orbit, and if that orbit were a perfect ellipse. But none of these conditions prevail, and even if all were present a score of other causes are present to interfere with latitudinal uniformity of temperature and other climatic conditions. Some of these are the inequalities of the earth's surface—mountains, valleys, great plains, bodies of water, etc., to which may be added as minor influences the somewhat variable composition of the atmosphere in different localities, irregularities in the isothermose and isodynamic lines, etc. Again the isotherms of summer and winter are by no means identical with those of the entire year, so that the attempt to chart any particular climate requires a prolonged series of observations and much painstaking.

Finally, when all the foregoing variations, inequalities and irregularities have been taken into account, there remains the potent factor of ocean currents, and as dependent on these the character, force and prevailing direction of air currents.

It is a combination of these various influences which determines the presence or absence of cloudiness, the average seasonal and annual rainfall, the relative atmospheric humidity, and all the other nameless qualities which go to make up a good, passable, or downright bad climate. The nature of the soil, and its capacity for absorbing, radiating, or retaining the heat of the sun must not be overlooked. This quality or predisposition alone often determines the whole question as to whether a given climate is salutary or the reverse.

*Altitude* affects climate in several ways. It determines or greatly modifies the temperature, other conditions being equal, principally by the accompanying rarefaction of the atmosphere, which occurs with uniformity as we ascend from the sea-level at the rate of one degree for each 560 to 600 feet of rise, these figures being averages, and necessarily only approximate. Another effect of altitude is the variation in the character of the soil and its diminished power of absorbing and radiating the sun's heat. It also, in connection with a decrease of barometric pressure, enhances the purity of the atmosphere, which at elevated situations contains fewer gaseous impurities, less dust and fewer germs. The atmosphere of mountains is much more powerfully diathermic than that of the lower levels, and the lessened barometric pressure causes more rapid expansion of heated air from the ground. So vivid are the contrasts that instances are not wanting in which ripe oranges and snowballs may be gathered on the same day, and within two hours ride, in fact, almost in sight of each other.

Longitude, *per se*, cannot be said to have any regular or definite relation to climate; but geographic position is in many instances a more potent factor than either latitude or altitude. Certain favored spots on the earth's surface apparently set at defiance all the observed rules for calculating climatic characteristics. They

have a distinct character of their own, despite latitude, longitude, altitude, proximity to bodies of water, air and ocean currents, and even topographical configuration. These mere patches, as it were, of climate are as a rule quite circumscribed or small in extent, and are immediately adjoined, in many cases, by other patches possessed of only indifferently good, or even comparatively bad climates.

Of course there are distinct physical causes for these local peculiarities, but it is not an easy task, in every instance, to discover, isolate and analyze them. Sometimes it is ostensibly a comparatively slight variation in the exposure. In other cases it may be any one of a dozen other causes, or a combination of several influences, slight in themselves but in the aggregate compassing quite radical results. It may be a change in the composition of the soil, the prevalence or absence of timber, proximity or remoteness of mountains, or possibly in consequence of a local and quite circumscribed, but quite constant, eddy or deflection of the prevailing air currents. Finally, it may result from a change in the character of the vegetation, one author on climatology asserting that plants are the only true climatometers.

*Bodies of water* absorb the sun's heat much less readily than does the land, and there is a corresponding lack of diffusion and radiation. On the other hand the specific heat of the water is greater than that of the earth, and hence the great lakes and the ocean possess, and tend to produce greater equability of temperature. Evaporation also serves to reduce the temperature of water, and as a result of all these causes bodies of water respond much more slowly to both the heating and cooling processes.

*Clouds* and aqueous vapor, suspended in the atmosphere, exert no inconsiderable influence in modifying climate, and these several latter influences are so important that one of the most natural subdivisions of climate is into those which are either insular, peninsular, or strictly

maritime. The former are subject to much greater extremes, and to much more sudden fluctuations of both heat and cold than the latter. The two classes also differ widely as to both relative and absolute atmospheric humidity.

Helix, California.

### *CANTHARIDATE OF SODA IN LUPUS.*

By ERNEST B. SANGREE, A.M., M.D.

The most interesting hour spent by me this summer, was that passed in the private office of Prof. Oscar Liebreich, in his Pharmacological Institute, Berlin. He had invited me to see his lupus cases—in which he takes just pride—and notice the results of his new treatment. Three times a week each patient comes to the office to have his eruption examined, his urine tested and to receive a dose of medicine. Professor Liebreich personally superintends this latter performance.

Each patient as he enters hands a bottle of urine to an assistant, and then holds out to the doctor his "individual cup" that he has brought with him. "How many?" asks Professor Liebreich, and the patient responds "three, four, five," etc. The doctor then by means of a small graduated syringe takes from a bottle the same dose as before, or a slightly increased one, and squirts it into the patient's glass. The latter now dilutes his medicine from a caraffe of water on the table, tosses off his dose, and retires. Dr. Liebreich's question refer to the number of graduations on his syringe, as he is very particular about the dosage.

Now as to his medicine: It is cantharides in the form of the cantharidate of soda, which he has found by experiment to be in every way the most satisfactory form in which to give this drug. When he first told me of his experience with cantharides in lupus, I supposed, of course, he meant in the form of plasters, but soon discovered that he gave it internally.

His results are very encouraging. Photographs, taken at different times, of the patients I had seen, showed the most pronounced changes for the better, and in some instances a complete cure, at least so far as any eruption could be seen. One case the doctor exhibited with a quiet smile, was that of the woman who was the first "cured" with Koch's tuberculin. She was a very bad case indeed to do anything with, but expressed her pleasure at the way she was getting along under this treatment. Other patients were most enthusiastic over their progress. They should be classed as pretty good judges, too, for most of them were old hospital "rounders." When I remarked on the extraordinary number of lupus cases that came filing in, the professor replied, with a laugh, "Oh, I have got them all; they all come to me now."

On account of the superficial inflammation it is often very difficult to tell either the extent of the tuberculous multiplication or to note its gradual disappearance.

Professor Liebreich overcomes this difficulty by the use of a small oblong piece of plain glass in a stout holder. This he presses firmly against the diseased tissue. By this means the blood is pressed out of the superficial tissues, leaving them white, but plainly disclosing small purplish rounded areas deep in the skin. As these areas disappear he knows the patient is getting well.

Upon inquiry I found his theory was that the small amount of cantharides absorbed was just enough to stimulate the cells of the organism to increased activity and thus enable them to throw off any morbid substance, if it were not too overwhelmingly great. For it must be remembered, that he does not confine the cantharides treatment alone to lupus; he had also several tuberculosis cases under it, who, he thought, were deriving benefit. When he told me his theory, I remarked, "Why, Professor, we have a name for that theory in our country, it is called *cellular therapy*," and then in a few words



I explained what was being taught and done here in that line.

He appeared much pleased to learn about this, and particularly asked me to send him a reprint of the case of Bright's disease which I reported in the *AMERICAN THERAPIST* about a year since, as having been greatly benefited by tincture of cantharides, at the same time remarking that I probably did not know a physician in England had received three years in the penitentiary for doing the same thing.

His frequent examinations of the urine, of course, are to ascertain if any undue irritation is being created in the kidneys. He says that few people will go to the amount of trouble he does to give this medicine properly, maintaining that it is neither satisfactory nor safe to trust this performance to the patient.

In this, however, I do not agree with him: a tablet containing a minute quantity of this medicament could as well be trusted with the patient as any other, provided he were frequently brought under the physician's eye and the condition of the urine watched.

Professor Liebreich begins with one milligramme three times a week, slowly increasing the dose if no untoward effect is noticed. This weekly amount could be divided up into tablets, I should think, and one or more taken three times daily with just as good results.

2020 Arch St., Philadelphia.

**LACTOPHENIN.**—Lactophenin is a certain, reliable, and (in the overwhelming majority of cases) not unpleasant febrifuge. Compared with the fever remedies hitherto in vogue, Lactophenin possesses an advantage in that no injurious and assuredly no dangerous collateral effects have shown to follow its use. As an anti-neuralgic and sedative, judging by experience in the clinic, Lactophenin is at least deserving of a place by the side of similar remedies hitherto used. Its superiority lies in the above-mentioned freedom from obnoxious collateral effects.

With special reference to its application in typhus, it deserves preference to the other medicaments hitherto used, for the reason that it has thus far proved harmless, and, furthermore seems to exert a certain specific influence on the nervous system.—LIEBREICH, in *Therapeutische Monatshfte.*

## UNUSUAL EFFECT OF TRIONAL IN THE TREATMENT OF INSOMNIA.

By J. W. IRWIN, M.D., Louisville, Ky.

For several years, I have had a great deal to do with the class of diseases known as insomnia, and to find remedies that would make my patients sleep without endangering their welfare by causing the opium habit, etc., has always been a matter of the greatest interest to me. A year and a half ago, I began to prescribe, quite freely, a preparation known as trional, which came into use shortly after the introduction of sulphonal. It will be remembered that a few years ago, I wrote a long paper on sulphonal, reporting sixty cases of the different forms of insomnia due to various conditions. I have read reports closely concerning the use of trional in the treatment of insomnia, and the only condition that seems to have been present after its administration, so far as I have been able to learn, has been the presence of hemoporphyrin in the urine in a few cases which occurred in Germany. None such cases have been reported in this country so far as I know. I have frequently examined for hemoporphyrin with negative results.

One year ago a patient who suffered much from insomnia came to my notice. This patient took forty-five grains of trional (in three (3) doses) during the night, and this dose was repeated three or four nights subsequently, with the effect of causing very profound sleep which lasted long into the afternoon of the following days. At the end of a week he became very feeble. Contrary to all previous reports the heart's action grew weak and was decidedly intermittent; this condition was followed by asphasia and loss of memory was very marked. There was great disturbance in his gait. I discontinued the use of trional in the large doses believing that forty-five grains in one night was too much. The patient could not be induced to again take trional for

some time owing to the bad effect which he had experienced from its use. Eight months ago, I again prescribed trional for him, adding one grain of caffeine to each dose, the dose of trional being fifteen grains, and did not allow him to repeat it no matter whether he slept or not. The caffeine seemed to have a most happy effect as a heart stimulant, and he slept from five to seven hours each night. I have had the urine of this patient examined frequently and no trace of anything abnormal has been found in it. I have also made careful examinations of his circulation from time to time, and did not discover, until last week, any further failure of the action of the heart, or any feebleness apparently due to the trional.

A week ago, I was suddenly called to the patient's place of business, to find him almost in collapse. He had taken the night before his usual dose of trional. He gave the history that for several days previously he had not felt in his usual good health, being depressed and languid, his legs felt heavy, a cold perspiration would break out upon him after waking in the morning about seven o'clock, and it would last until ten A.M. The perspiration began at his feet, extending up the legs to his body. His arms were in the same condition. I found him considerably cyanosed, and his temperature was reduced to  $96\frac{1}{2}^{\circ}$  F. I did not repeat the dose of trional that night, but on the following night it was given, followed by a similar experience. He has been in bed ever since. I discontinued the trional after the repetition, and on the third day following its withdrawal he is revived to the normal condition without anything more than small amounts of stimulants having been given him. I cannot believe there was any malarial element in the case because stimulants alone revived him.

This is the first case in which I have seen trional cause any bad effect when given in such doses. When combined with caffeine, any depressing effect would not have been expected.

## THE ABORTIVE TREATMENT OF TYPHOID FEVER.\*

A PRELIMINARY PAPER.

By JOHN AULDE, M.D.

Discussions bearing upon the abortive treatment of typhoid fever are of perennial interest, since the disease prevails to an alarming extent throughout the country, and scarcely a year passes that we do not witness serious epidemics which resist the most earnest solicitations of our most skilled and talented physicians. Having had exceptionally favorable opportunities for observing the manifestations of this malady for the past ten years, the writer deems it expedient to present at this time a summary of his conclusions regarding its abortive treatment in the form of a preliminary paper.

By way of introduction, it may be well to indicate what is definitely meant by the term, abortive, because much will depend upon the definition adopted. According to the *Standard Dictionary*, abortive is used in medicine to indicate "(1) Causing abortion; (2) shortening in course, as abortive treatment of fever." The expression is, therefore, intended to convey the idea of either aborting the disease or shortening its course, and with this as a basis, the following remarks will be directed to an elucidation of the methods to be adopted.

As a preliminary to these remarks it will be appropriate to mention some of the objections to the routine methods which have been so long advocated, although it is not deemed advisable to enter into a study of its pathology, because the pathological conditions in typhoid fever are too well known at the present day. The routine treatment of this disease is devoted principally to the disinfection of the intestinal tract, the profession being under the impression that the micro-organisms find there a suitable soil for their rapid multi-

\* Read before the 21st annual meeting of the Miss. Valley Medical Ass'n, Detroit, Mich., Sept. 6th, 1895. (Also published in the *Dietetic and Hygienic Gazette*, and in the *Vienna Therapeutische Wochenschrift*.)

plication. This assumption, however, is true only in part. In the first place, while it is true that the micro-organism associated with this disease finds a suitable *nidus* for its reproduction in Peyer's patches, we must bear in mind that an inflammation of Peyer's patches is not always attended by ulceration; hence, the morbid process is not actually in the intestinal tract as usually understood. So long as the micro-organisms are confined to these bodies, although the disease is of intestinal origin, the effects are constitutional, due to the absorption of poisonous products, not only from the affected areas but from the intestinal tract as well. It is principally for this reason that intestinal antiseptics have failed; and, for the same reason, it should be added, may we expect benefits from the employment of remedies which aid or assist in rendering aseptic the contents of the small intestine, since, from the above explanation, we can understand how advantageous they will prove. Salol, beta-naphthol and guaiacol are efficient remedies of this class, and it has lately been suggested that the latter may be used externally with good results.

The first mentioned of these remedies, salol, is effective in the treatment of typhoid fever because, when it enters the intestine, it is broken up into its constituent elements, salicylic acid and phenol, both ingredients being eliminated principally by the kidneys. But the benefits are often more apparent than real, and there comes a time where these remedies act unfavorably, owing to their poisonous influence upon the renal structures, and they must be abandoned. Moreover, it is now well known that carbolic acid is a most objectionable cardiac depressant, and the faithful clinician finds that, however beneficial its effects, salol cannot be continuously given in the treatment of this disease. Beta-naphthol is not open to this objection, but its employment is often contra-indicated by reason of the pain and burning which follows its administration, and in addition to this,

patients rebel against it, owing to its taste. This latter objection can be obviated by administering the drug in the form of capsules, but even then we do not overcome the objection first noted. Nevertheless it is the ideal remedy for this disease, provided we assume it to be a disorder confined to the intestine; but it is not strictly an intestinal affection as previously stated.

In the present state of medical knowledge, guaiacol ought to be the ideal remedy for the treatment of typhoid fever, but it is lacking in certain essential elements. Perhaps the principal objection to guaiacol is the fact that in order to be of service the whole system must be medicated. Thus, guaiacol is largely eliminated by the pulmonary structures; it is also eliminated by the skin and kidneys as well as by the bowels. The advantages arising from its local application are due to several influences, as follows: (1) Its influence upon the nervous system; (2) Its influence upon the protoplasm at the points of elimination, namely, in the lungs, kidneys and skin; (3) Its special influence upon the protoplasm of the intestinal structures where, owing to the inflammatory action taking place, a large percentage is likely to find an outlet. And just here, it should be remarked, is the secret of the successful employment of remedies in this disease. We need a remedy which will enact the rôle of an intestinal antiseptic both locally and constitutionally; that is, a remedy which, on entering the intestinal tract, will aid or assist in rendering the intestinal contents aseptic, while at the same time it is dissolved and taken into the blood and circulating fluids, to be again eliminated and pass through the same rôle—until it is finally discharged through the bowel. Naturally, we should turn to one of the salts of mercury for this ideal remedy; but, unfortunately, mercurials have utterly failed to control typhoid fever, although calomel was given, and is even now recommended, under the mistaken notion that it acts as an intestinal antiseptic.

We have in copper arsenite a remedy which fulfils every claim, and moreover, it has been pretty thoroughly tested clinically. Since the autumn of 1888, when I first brought its virtues to the attention of the profession, I have used it constantly with the most satisfactory results. In addition to my own experience, I have received numbers of flattering reports from other physicians in general practice, notably one from Dr. A. H. Thomas, of Hurley, Wisconsin, who passed through an epidemic of typhoid which occurred in Hurley, Wisconsin, and Ishpeming, Michigan, during the summer of 1893. Dr. Thomas reports (*AMERICAN THERAPIST*, December, 1893) ninety cases treated, in which copper arsenite constituted the principal medication, with but a single death, and that from intestinal hemorrhage.

Since the autumn of 1888, I have never failed to abort or shorten the course of typhoid fever by the use of copper arsenite, together with the administration of other indicated remedies, presently to be mentioned, and I believe that this disease can be arrested at any stage.

This latter claim is so sweeping in its character that an explanatory note should be added. In its incipiency, and probably for the first week of an attack, typhoid fever is specific in character, but after this period it is usually composite in character; in other words, it is a mixed infection, due to the effects of the disease upon the function of elimination. Now, when the claim is advanced that typhoid fever can be arrested at any stage, it means that the typhoid or specific nature of the infection can be caused to disappear, when there remains a simple, continued fever. Anyone having a case of typhoid fever under observation will find it an easy matter to verify the claim here advanced.

The plan of treatment is here briefly outlined, as follows: When a case of suspected typhoid comes under observation, the patient is confined to bed, a suitable diet ordered and a careful record of the morning and evening temperature kept.

As a rule, copper arsenite in doses of one one-hundredth of a grain is given at intervals of four to six hours while awake. Should there be evidences of hepatic complication, mercury biniodide is substituted for the copper salt, one one-hundredth of a grain being administered at intervals of two or three hours for one or two days, which is generally sufficient to correct or remove this complication for the time being. It may be necessary to repeat this medication, but the mercurial should not be permitted to supplant the copper salt. When the patient is restless or sleepless, it may be expedient to administer small doses of the bromides, or codeine sulphate may be substituted, one-fifth grain at intervals of two hours during the afternoon. In addition to this, I have found nuclein solution, the animal product, most effective in restoring the functional activity of the glandular system, one-third to one minim at intervals of two to four hours. In serious cases, or when the patient has advanced to the second week of the disease, both remedies should be given hypodermatically, preferably in the following manner: A tablet of chemically pure copper arsenite containing *one grain* of the salt is dissolved in four ounces of boiled water, and to this mixture dilute hydrochloric acid is added drop by drop until it becomes clear, the mixture being thoroughly agitated meantime. Each thirty minims of this clear solution carries approximately, one milligram (gr. 1-65), and this amount can be injected under the skin at some indifferent point night and morning. The nuclein solution is given in doses of two to five minims (five to ten drops), diluted with a sufficient quantity of sterilized water to make a syringe-full and introduced subcutaneously in the same manner, twice a day.

The simplicity of the treatment is all that could be desired, and its efficiency will be apparent to those who have the temerity to test its virtues. Several of my professional friends report remarkable results from the exhibition of nuclein solu-

tion alone, although, in most instances, it has been tried only in the hopeless cases after the apparent failure of the approved methods.

Let us take a brief survey of the physiological basis of this plan of treatment. Anodynes are used solely as a temporary expedient for the purpose of quieting the irritant effect of the poisons upon the nervous system. The mercurial for its influence upon the hepatic function, which is liable to become deranged, owing to the extra work thrown upon the liver in eliminating or destroying the poisons. The copper arsenite acts as an intestinal antiseptic, through its influence upon the nervous system and through its influence upon the protoplasm at the points of elimination, namely, the epithelial cells of the intestinal mucous membrane. Through its irritant effect upon protoplasmic cells throughout the body, being administered in extremely small doses, it acts continuously as a stimulant, augmenting cellular activity in every part. The nuclein complements this action, by enacting the rôle of a ferment; but in addition to this, it establishes an artificial leucocytosis, an important function which has been demonstrated to be absent in typhoid fever. This latter is a feature which has been overlooked in the treatment of typhoid fever. For the lack of proper nourishment, phagocytic activity is held in abeyance in this disease; the multi-nuclear white blood-corpuscles, being unprovided with suitable pabulum, are unable to produce the needed *defensive proteids*, of which nuclein is the chief, and as a consequence, metabolism is hindered, waste products accumulate, so that to the specific infection are added the disorders resulting from suboxidation and defective elimination.

By this plan of treatment, typhoid fever can be arrested, if taken in the early stages, within a few days, or at most in less than a week. When adopted during the second week of the disease, or subsequently, the peculiar character of the affection is changed; the temperature falls, the patient experiences a feeling of well-being, threatened complications subside and recovery takes place, relapses being unknown.

## TOXINE AND ANTITOXINE OF TETANUS.

By PAUL GIBIER, M. D.,  
Director of the New York Pasteur Institute.

(Address delivered at the March meeting of the Medico-Legal Society.)

Mr. President and Gentlemen of the Medico-Legal Society: In reading on the programme of this meeting that the Toxine and Antitoxine of Tetanus would be spoken of, perhaps some of you have asked in what manner such a subject could, if not interest the Medico-Legal Society, at least harmonize itself with your usual work. Before concluding this communication, I hope to show you that nothing is of more immediate interest, and, moreover, that the discovery of tetanus antitoxine invites the attention of the Society on account of the novel view it may bring upon some questions which pertain to the province of legal medicine.

You all know what Tetanus is; it is recognized by spasmodic convulsions of the muscular system which, before invading the entire apparatus, often begin in a limited number of the muscles; for instance, those of the jaw, a circumstance which has justified the name "Lockjaw," commonly given to this terrible and comparatively rare malady. In fact, this disease is a terrible affection. Its symptoms begin as painful and almost as terrible as those of hydrophobia. Permit me, in order to give you an idea of the gravity of tetanus, to remind you that when it occurs in consequence of wounds inflicted upon the battle-field, where it is not uncommon, the mortality among those affected is exceedingly high, the rate sometimes attaining 90 per cent. of the cases. In ordinary circumstances, however, one can say that the percentage of deaths is very high, reaching a higher rate than 70 per cent. As far as I am concerned, in a medical career of almost twenty years, in which I have observed several cases of tetanus, I have not seen one terminate in recovery. Sometimes tetanus seems to

appear spontaneously; that is to say, no apparent wound can be found on the patient. At present the opinion that tetanus may occur spontaneously has but few supporters, since we know how minute may be the quantity of toxine necessary to cause the tetanic accidents, which, moreover, may appear several days only after the inoculation of the germs, or of their toxine; that is to say, after a slight wound has already healed.

Since the researches of Nicolaier (1884) and of Kitasato (1889), we know that tetanus is caused by a special bacillus of a quite peculiar kind. At first its form, at a certain period of its evolution, is typical. It has the appearance of a pin, having a spherical head, or of a small nail with a dull point. The head of this nail is formed by a spore which may resist ebullition in water for several minutes. It is the only organ of the microbe which is found in old cultures, and probably also in the soil, for this germ is found in the superficial layers of the ground. At the surface of the earth it is destroyed by the air and the rays of the sun, but a few centimeters beneath it may persist indefinitely. However, as its presence has frequently been revealed in the intestines of herbivorous animals, where it finds the conditions of temperature and the medium favorable to its development, it is easy to realize that it may be met with in any place where the excrements of animals are spread upon the soil; hence, it was with reason, that, formerly, before Pasteur's discoveries of the germs as causative agents of contagious diseases, tetanus was regarded as a telluric poison. By the way, it may be interesting to remember that Dr. Le Dantec, surgeon of the French navy, indicated a few years ago this curious fact, that the natives of some of the Islands of Oceanica (New Hebrides) make use of arrows which inflict wounds that are generally followed by tetanus. The poison of these arrows is prepared with a viscous mud which they extract from holes where crabs retire to devour and digest their prey.

Another feature of the bacillus is that it is almost absolutely anærobic: *i. e.* that its growth ceases in the presence of the atmosphere. To obtain the cultures which contain the toxine, to which I will shortly refer, one must inoculate some bouillon contained in a receptacle from which the air is exhausted, or in which it is replaced by hydrogen. Carbonic acid and illuminating gas, and probably some other gases are detrimental to its growth. According to my experience, the best way of cultivating it is in vacuum which, as soon as the growth of the bacillus commences is filled by a foetid gas secreted by the bacillus, the odor of which resembles that of sulphide of carbon.

The experimental study of tetanus is one of those in which human sagacity has most exerted itself; it allows us to penetrate to the mysterious growths of animal nature, and permits us to unveil the secret processes of certain intimate phenomena of cellular biology. To facilitate a description of my subject, I will suppose that we are experimenting together. At first let us search for the germ of tetanus. A man has been wounded a few days ago; tetanus has set in, and the man is dead. We examine his blood, his brain and the other viscera; we find nothing abnormal. Around the wound, often slight, a small opening has been sufficient for the introduction of the "Great Intruder," we may find, sometimes, but not always, the elements for which we are searching.

Occasionally we may find under the microscope, a few bacilli which represent the adult form of the microbe, and with them a few rods with their terminal spores, such as you will see in the microscopic preparation which I will submit to your examination in a few moments. It is seldom that the specific microbe is alone, for it is a remarkable fact that other microbes or the presence of bruised tissues are necessary to its multiplication. To separate it from the other microbes we will use the great power of resistance of

its spores to heat, and submit the fluid, which we have collected from around the wound, to a temperature of 80 to 90° C. for a quarter of an hour; in short, we isolate the microbe by the usual process, and then we inoculate it in a flask two-thirds of which will be filled with bouillon, and then we produce the vacuum. This obtained, we place the flask in the incubator, the temperature of which is regulated at 38° C. At the end of forty-eight hours we may already have an abundant culture developing fine bubbles of gas at the surface of the fluid.

If, at this moment, we take a drop of fluid and examine it under the microscope, we will see that it contains hundreds and even thousands of germs. If we inject a few drops of this fluid, containing so many microbes, into a guinea-pig (an animal very sensitive to tetanus) we may think that the little animal shortly succumb. If, instead of the bacillus that we have just inoculated, we had used 1-100 of a drop of anthrax culture of the same age, the animal would die within forty-eight hours. It being known that the guinea-pig is equally sensitive to tetanus, we may suppose that it will die. Not at all, and ordinarily it resists. What is this problem, and how can we solve it? Let us wait, one, two, or three weeks; let us examine anew the culture. We find in it the same germs with little modification. If we inject at that time, a few drops of the fluid into another guinea-pig, the phenomena that we observe will be very different. After about two or three days, the animal will present the characteristic contractions of tetanus, and will die. What has occurred? The germs were the same; was it that they have acquired a new virulence during the time they have remained in the incubator? This is not probable; but is it not that they had time meanwhile, to secrete a special poison, a *toxine* which accumulates in the bouillon of the culture? In order to ascertain, let us then separate the germs from the fluid in which they have grown, by filtering

the latter through an unglazed piece of porcelain. By so doing, we will obtain a liquid entirely deprived of germs, as can be shown by an attempt to cultivate it. Well, this fluid is extraordinarily toxic; to such an extent that a fraction of a drop, when its water is once evaporated, will leave a dry and imponderable residue, which is not the pure toxine; yet this imponderable particle of toxine will cause the death of a mouse or of a guinea-pig.

This toxine is so active that, a few months ago, having accidentally inflicted a slight puncture on his hand with the point of a Pravaz needle which he had just used to inject some toxine, a French experimenter nearly died with tetanus, which confined him to his bed for several weeks. However, the needle was hardly impregnated with the tetanic fluid, which had been filtered.

Now we have the proof that the toxine secreted by the bacillus is the element that causes the symptoms of tetanus; the proof of it is, that if we take the bacilli which may have remained on the filter and by means of a special arrangement, we wash them and remove the toxine which they may have retained by pouring over them several litres of sterilized water, we may with impunity introduce them in relatively large quantities under the skin of a guinea-pig (Vaillard and Vincent). Of course, we must take the necessary aseptic precautions to protect the site of the operation against all sort of infection, as this complication might foster the development of the specific bacillus and be the indirect cause of lock-jaw.

Here I must wander for a moment to explain why tetanus bacilli injected alone may not cause any trouble; whereas, on the contrary, when they are accompanied with other germs (even non-pathogenic), they may determine in the organism the intoxication of which the spasms of the muscles and the high temperature are the most striking manifestations. The beautiful experiments which I will describe will give us the explanation of the facts

which I have just advanced and, at the same time, they will furnish us the proof of the value of the doctrine of phagocytosis, as taught by Metschnikoff. Phagocytosis, as you know, is the function exercised by certain migratory cells, similar to, at least analogous with, the white globules of the blood, in the presence of foreign elements, and especially of certain microbes, when these have accidentally been introduced into the organism. For instance, when the microbes of tetanus are deposited in the subcutaneous tissues of a guinea-pig, one observes the following phenomena, which may be followed hourly with the microscope: The spores and bacilli are surrounded with an increasing number of migratory cells (phagocytes). After a variable number of hours, few bacilli remain free; they are soon incorporated in the cells which sometimes contain a considerable number of spores and bacilli, as many as twenty-five, thirty and more. These spores, enclosed in the interior of the globules, become less and less apparent, before disappearing completely. The organism is protected against the effects of the toxine, the germs which were to secrete it having been destroyed. Here is, *en résumé*, the phenomenon of phagocytosis, discovered by Metschnikoff, one of the distinguished directors of the Pasteur Institute of Paris.

I must now explain the reason why tetanus may develop in the animals upon which we are experimenting, despite the insertion in their cellular tissue of tetanic germs deprived of toxine, if this insertion, made without sufficient aseptic precautions, should permit the simultaneous introduction of other microbes. The course of it is very simple: It is demonstrated that instead of being endowed with the chemiotactic property, that is to say, instead of causing the progress of the white corpuscles from the capillaries, and the lymphatic vessels to the point which they invade, some bacteria have a quite opposite action. They prevent the migratory cells, or phagocytes, from accumu-

lating around them. This property is favorable to their own development and protects; at the same time, the tetanic bacilli from the attacks of the phagocytes, which can no longer prevent them from secreting their fatal toxine.

We must remark that, in the wounds which are followed by tetanus, we ordinarily find ourselves in the presence of these conditions: More than one kind of microbe is contained in the dust or dirt which may infect the wound. Moreover, the tissues are more or less bruised, another condition which is favorable to the growth of the bacillus of tetanus, as the following experiment will prove. If an injection of tetanus spores, pure and without toxine, is made into two guinea-pigs, in the muscles of the leg, and if we forcibly bruise the seat of the injection in one of the animals, the latter will die of tetanus, whereas, the other will resist. In this experiment the crushing of the tissues has diminished and compromised their vitality, and consequently their power of resistance; the army of phagocytes, being unaware, so to speak, of the danger threatening the cells (organized in the shape of a guinea-pig), the enemy takes advantage of this to fortify and multiply itself in the place wherefrom it throws its envenomed darts, which attack those cells which are vested with the most delicate functions as well as those which have received the apparently less noble missions.

I cannot refrain from speaking of one more experiment, very interesting indeed, which, in itself, would prove the preponderant role of the toxine in the production of tetanus, at the same time as the phagocytic function, in the case where the above named affection does not appear as a result of the injection of the bacilli and spores deprived of toxine. If we place these microbes in a small cylinder in filter paper, previously sterilized, and, after having sealed it with the collodion at both extremities, we introduce it under the skin of a guinea-pig in such a manner as to protect the wound from a concomitant in-



fection, we will observe the following facts: After a few days the contractions will appear progressively, commencing in the limb which is nearer the insertion of the small roll of paper, invading afterward the side, and, finally, the whole body until the animal expires (Vaillard and Rouget). It is easy to understand what has happened; let us look, post-mortem, upon the battlefield; that is to say, around the small tube of paper, a kind of movable fortress like the Horse of Troy, where the enemy, safely sheltered, was introduced into the place, and this is what we will perceive. Numerous phagocytes have rushed around the foreign body to apprehend the enemy, the presence of whom they have felt; but the sides of the cylinder have opposed the entrance of the defenders of the organism—I had nearly said: of their country—into the intrenched camp of the enemy, and if the presence of a few cadavers of white corpuscles in the middle of the tetanic bacilli shows that a small number of cells were able to go through the pores of the cylinder, the mass of the army was unable to fight in an effective manner. During that time what has happened? The organic fluids, impregnating the paper, brought a natural and rich aliment to the bacilli, thus enabling them to multiply at ease, and to secrete abundantly the powerful toxine which the issues have absorbed and of which we have just witnessed the effect.

Again, here is a fact which appears to me as demonstrated: The bacillus tetanus does not cause the symptoms of that disease, but in an indirect manner; that is to say, through the toxine that it secretes.

The microbe does not multiply in the organism wherefrom it has disappeared when the symptoms began. It is probable that a few isolated bacilli, growing on a limited point, in some recess of a wound, are sufficient to secrete an amount of toxine which will cause death.

However, the question seems to be still more complicated. In fact, it is but a

short time since the demonstration seems to have been made that even the tetanus toxine is not the direct agent of the symptomatic contractions. A peculiarity which seems to prove it is, at first, the time which elapses between the injection of the toxine and the appearance of the contractions, which may commence only after several days. Moreover, if the toxine is heated for a few minutes at the temperature of 65° C. (Knud Faber, Tizzoni, Kitasato, etc.) it becomes nearly harmless, or, at least, relatively enormous quantities of filtered cultures are necessary to cause death of, or even light convulsive symptoms in the guinea-pigs, which are killed by a cubic millimeter of the same fluid before it has been subjected to the action of the heat. On the contrary, a small quantity of the fluid extracted from the muscles of an animal killed by tetanus will determine death, even after having been heated to a high temperature during a longer time (Courmont and Doyon); thus, according to the above experiment, the toxine secreted by the bacillus is not conclusive *per se*. It acts in the manner of a diastasis, in determining at the expense of the humors of the organism, the formation of another substance which is the immediate agent of the tetanic spasms.

However, it may be on the part of the toxine; we have seen that a guinea-pig weighing about one pound, or 500 grammes, may be killed by 1-100 of a drop weighing about one milligramme (1-67 grain) before being dessicated and, therefore, containing an amount of active matter which the most sensitive scale could not register.

These substances which are mortal in infinitely small doses, cannot be compared for toxicity, either to the alkaloids or to the most virulent mineral poisons that we know of. It is a novel toxicology which commences, and it is a subject upon which, gentlemen of the Medico-Legal Society, I beg to invite your attention, as, in the near future, it may call for a new chapter to be added to the treatises

on forensic medicine. If the toxine cannot be compared to any of the mineral poisons, nor to the alkaloids, we can say that it resembles rather in composition the venom of the snake, and like it, seems to be what was termed albumose, or an albumo-toxine.

If the quantities of the toxine sufficient to determine death are remarkable for their small proportion, we will see that the remedies which can be opposed to it are no less remarkable for the same reason.

These remedies, which were discovered at almost the same time as the properties of the toxine, have, on account of their antagonistic properties to the latter been named *Antitoxines*. In fact, we no more know what the antitoxines are than the toxins, and, so far, chemical analysis has not been able to establish a distinction between these two substances any more than it has enabled us to distinguish, from a chemical standpoint, the venom of the snake from the albumen of the egg.

As I have just spoken of the venom of the snake, I will say a few words about a new process of immunization against this venom. This instance being quite comparable to what takes place in the immunization of the animals and the man against the toxins, it will enable us to understand more easily the *rationale* of the formation of the antitoxine and its utilization in therapeutics. Suppose that we take a drop of the venom of the rattlesnake and that we inject it into a rabbit. After a few minutes the animal will show signs of malaise; it may emit plaintive cries; later on it will fall on the side, and, in a variable time, sometimes in less than one hour, it will die in convulsions. If we inject a small portion of a drop of venom, previously diluted, we will find a dose which may produce a certain amount of discomfort in the animal experimented upon without causing its death. After a few days when the animal has completely recovered, we will inject another dose of equal size, or even a little larger than the previous one; the same morbid

phenomena, if there are any, will be less intense than at first. Finally, by increasing progressively and slowly the doses, we will succeed in immunizing the animal against the venom of the snake to such an extent that it will be able to undergo with impunity the bite of the reptile itself, or receive into its veins a quantity of venom sufficient to kill a horse. Here is certainly a very remarkable result; but there is something better yet. For, if we bleed this rabbit, and we inject some of the serum of his blood into another rabbit, taken from a lot of three, four or more animals of the same kind, into which we have just injected a fatal dose of venom, all these animals will show, in a few minutes, the symptoms of poisoning and die in a short time, with the exception of the only one which has received a hypodermic injection of the serum coming from the animal immunized.

This experiment, which I relate to you in outline, has been made by my friend Dr. A. Calmette, of Paris, and also by Messrs. Phisalix and Bertrand, of the same city. It teaches us one thing: That when we resist any poison, it is because we have in our organism a certain substance which neutralizes the effects of this poison. This is the substance which is antitoxine. In fact, everything in us is antitoxine; and if it was not so, there is not a species of microbes among the innumerable species which live on earth, which could not, at a given moment, produce an epidemic which would sweep mankind and all the animals from the surface of the globe.

In my opinion, the microbes that we resist only partially, or not at all, are species which are very rare as compared with the others, and to which our system, considered in the succession of the generations of the human race, has not had the opportunity to adapt itself, and to the toxins of which, in other terms, our organisms have not learned to oppose adequate antitoxines. The microbe of tetanus is one of the latter. But as for the venom of the snakes, of which I have

just spoken, and in treating the animals in the same way, we will succeed in producing in their blood an antitoxine which will exert its immunizing power in really infinitesimal doses. It will even cure a case of tetanus when injected at the incipient stage of the disease, if given in larger doses.

This tetanus antitoxine may be obtained in a similar manner to that used for the production of the diphtheria antitoxine, which is familiar to you. At first, small doses of toxine, modified by various processes, are injected into the animal which one seeks to immunize. Afterwards, less and less attenuated doses are injected in increasing quantities at various intervals, until the immunized subject is able to bear very large doses of the toxic and virulent culture. When a rabbit, a dog or a horse has been so treated for a period of several months, a certain amount of blood may be extracted. The quantity of serum taken from this blood, being injected subcutaneously into a guinea-pig, and which will prevent it from being affected by a fatal dose of toxine, may be inferior to five and even ten million times the weight of the animal.

The immunizing property of the tetanus antitoxine is, therefore, comparable to that of the toxine from the standpoint of the small quantity necessary to produce its effects. In fact, the serum which is injected is not the antitoxine, but the latter is dissolved in the serum, consequently the weight of the serum necessary to immunization of the animal weighing 500 grammes, being only of  $\frac{1}{10}$  of a milligram, the toxine contained therein has really no appreciable weight. At the laboratory of the Pasteur Institute of New York, we have some animals which have been experimented upon for several years. Their blood serum has attained an enormous antitoxine power, but these animals are too small to produce available quantities of antitoxine. However, for several months past we have been immunizing several horses, and about the latter ani-

mals I must say that, despite the greatest carefulness in the process of immunization, we lost several of them at the beginning. The dog which is also an animal represented as being very sensitive to tetanus, has proved, in our experiments, particularly susceptible of contracting this disease in a mortal form. It is only right to add, that it is easy to immunize it rapidly.

Recently two cases of tetanus have developed in a few days in our stable, and ended rapidly in death. A few days later another horse commenced to present the characteristic symptoms—trismus, stiffening of the limbs, immobility of the ribs, distortion of the tail, contraction of the winking eyelid, etc. The animal was examined by Dr. Liautard, of the American Veterinary College, and was considered doomed. Then I drew some blood from one of the horses immunized against tetanus, the serum of which had an immunizing power superior to one million. Several doses were injected into the horse, the condition of which improved rapidly; the stiffness of the muscles diminished, and within eight or ten days the animal was in perfect health. In consequence of these accidents, all the horses of the stable were immunized with small doses of anti-tetanic serum, and since then not a single case of tetanus has occurred in our stable. A few days ago Dr. Ryder, of the American Veterinary College, was sent to me by Dr. Liautard to obtain some serum to treat a horse which had shown the ordinary symptoms of tetanus, in consequence of the amputation of the tail, practiced for fashionable purposes. After a few injections, the horse showed some improvement and, after two days' treatment, the recovery appeared as certain, and, in fact, the horse recovered from his attack of tetanus.

Several cases of recovery have also been reported in man, especially in Italy, but it appears that, to obtain such a favorable result, the disease must be treated at its commencement. The tetanus antitoxine has certainly a

larger immunizing power than the diphtheria antitoxine; however, its curative power is evidently less. If the theory of Gourmont and Doyon is exact, this may be explained by the fact that the tetanus toxine does not act in as direct a manner as that of diphtheria, and if the power of the antitoxine against the toxine (in tetanus) which has not yet produced the convulsive substance is considerable, this antitoxine has no action on the tetanic matter produced by the toxine acting in the way of a soluble ferment.

The practical conclusion to draw from the above is, that tetanus antitoxine will be of great value in cases of tetanus treated at the very beginning, and still more particularly in cases of the chronic form. These remarks apply as well to veterinary as to human medicine, but it is, above all, in cases of wounds having been in contact with the soil, or with some objects having been directly or indirectly in contact with it, that the preventive action of the antitoxine will prove efficient.

It is a well known fact, that this kind of a wound is very liable to produce the complications of which I speak. A small quantity of antitoxic serum injected hypodermatically, will be sufficient to afford immunity which will last long enough to protect the patient against all chances of infection by the Nicolaier bacillus. It is a matter of fact that, if this practice becomes general, a large amount of antitoxine serum would be wasted, but a certain number of human lives would be preserved, and this is sufficient to authorize the commendation of this practice.

By a perusal of the observations published by railway surgeons, it appears to me that tetanus is a relatively frequent complication of the wounds inflicted in railway accidents, and from what I have just said, you may derive the explanation of this fact. As the Medico-Legal Society contains a special section devoted to railway surgery, I beg leave to submit to you the following question to which I call the attention of the eminent lawyers, mem-

bers of this society, and of the physicians and surgeons interested in this matter. The efficacy of antitoxine of tetanus being demonstrated, is it not admissible that the liability of the railroad companies will be increased in cases where tetanus will have developed in persons wounded in railroad accidents, if the preventive injections shall have been neglected? As I said at the beginning of this address, according to my opinion, which I hope you will share, the question of the antitoxine can no longer be indifferent to forensic medicine, and it is with these remarks, to which I incidentally give the interrogative form, in order to provoke your observations, that I will conclude this communication, which will, despite its incompleteness, prove of interest at least to a certain number of members of our society.

The great fatality attending tetanus, both in animals and in man, gives the highest interest to any plan of treatment that may prove of value in attesting the progress and leading to a cure of this dread disease.

We have already, in the preceding paper, described the mode of production of this antitoxin, and spoken of the good results that have been, in a number of instances, secured abroad by its use.

It is therefore with pleasure that we reproduce from the *New York Medical Record* of last August 24, part of an article by Dr. C. F. Timmerman, of Amsterdam, N. Y., who had the good fortune of saving the life of a patient by means of this substance, prepared at the New York Pasteur Institute:

#### A CASE OF TETANUS CURED WITH ANTITOXINE.

CASE III.—William W.—, an Irishman, aged nineteen, burned by his clothes catching fire from a lamp, on the evening of April 28, 1895. The entire left side from the sternum to the spine, and from near the spine of the ilium to the base of the neck, and the entire arm from near the wrist to the base of the neck, including the axilla, and also both hands and fingers, were burned deeply, in some

places to the bone. When I arrived at the house, about 2 A. M., I found what is commonly known as a potato poultice applied. (The entire wound was covered with scraped raw potatoes, fresh from the cellar—a most excellent habitation for the bacilli of tetanus.) I removed, as best as I could, all this material, and applied Caron-oil dressing. I again dressed the wound the next morning, removing all that remained of the poultice, considerable of the burned skin coming with it, opening the blisters and pressing the skin down gently. All went well, the wound acting very kindly.

Nothing occurred to cause alarm until May 15, seventeen days after the accident, when the man complained of some stiffness of his jaw, which he said he had felt for two or three days. I lost no time in writing to Dr. Paul Gibier, of the Pasteur Institute, New York City, who promptly replied and advised me to use antitoxine immediately, also stating that he had never cured tetanus in a human being, but had in a number of horses. At the same time I did all I could to relieve the advancing tetanic symptoms. I gave physostigma sulphate hypodermatically, grain 1-100th, twice daily, and by mouth every three hours. Later I increased it to 1-50th grain each dose, and I gave morphine as indicated, and chloral very freely, sometimes 30 grains, repeated every two, three, or four hours. The spasms were at first so well controlled by these remedies that it was not until Tuesday morning, May 11, three weeks after the injury, I used the antitoxine. There was an apparent fixation of the muscles of respiration, and he was almost unable to breathe; nearly all the muscles were in a constant state of spasm. I administered anodynes with a more free hand and with the family's consent. The patient then grew so much worse I availed myself of the only remaining chance, and tried this remedy. I gave the first injection of 25 c. c. (about 6 drachms) tetanus antitoxine, in the lateral part of the abdomen; the serum was very rapidly absorbed, and at 10 P. M. I gave another 25 c. c. The following morning I gave 10 c. c., and intended to give the remaining 15 c. c., but he was so exhausted I waited until the next morning. I wrote to Dr. Gibier, who advised me, as the treatment was begun so late, to give him more serum, and also to wash the wounds with Gram's solution (iodine, 1 gm.; iodide of potassium, 2 gm.; and distilled water,

300 gm.). On Monday morning, May 27, I injected 10 c. c. more of the serum, and in the evening 15 c. c., when the spasms were almost subdued. I waited for more symptoms to appear to use the other bottle, but there was no use for it, and I relied only on chloral afterward. The present condition of the wound is most excellent, everything healing very rapidly, and patient sitting up most of the time. In looking over recent publications I find only six or seven cases in all where antitoxine or tetanine has been used successfully in tetanus, and they were all by foreigners, and I believe this is the first case in America where this antitoxine has saved a human being.

## CELL METABOLISM AND BRAIN BUILDING.

By PROF. ELMER GATES,

of the School and Laboratory of Psychology and Mind-Art,  
of the Pennsylvania Museum.

Automatic metabolism is known to exist only in connection with feeling, that is, with the power to respond to certain (not all) external stimuli. It is probable that automatic metabolism in its *simplest* form reacts to but one stimulus, *vis.*, the chemical or electro-chemical. But in this simplest form it responds to food-stimuli—it feels. There are many things it does not feel, and it does not respond to them, but to the appropriate stimulus it responds by internally initiated movement, and this differs in *degree*, not in *kind*, from the highest orders of intellection. A non-living organic compound does not respond to a stimulus by an internally initiated *adaptive* movement—it does not crawl away from a hot needle, etc. I do not, of course, attempt to say that even “matter” may not be alive—the gradation of life and not life may have no abrupt line of demarkation, but you will allow me to class bodies into animate and inanimate by the test that the inanimate do not *adaptively* respond by means of energy stored up by metabolism. Mental functioning is but adaptive responses to stimuli by means of the stored energy of metabolism.

Hence, I call mind, or preferably, mentation, the distinguishing feature of animal bodies. A cell of lowest form *feels* stimuli and responds—feeling is a mental characteristic. Self-initiated locomotion is mental characteristic. Death of feeling with the cessation of automatic metabolism is a mental characteristic; hence, I make mentation co-extensive with vitality. I have given no reasons for so doing; I simply state my conclusion. “Physical” labor, so-called, is mental labor; it is the *mind* that gets *tired*; it is *feeling* that is *tired*; if it were not for the feeling, there would be no fatigue. It is not the “body,” but the *mind* which throws the shovel of dirt just so far and no farther; it is the *mind* that balances the rope-walker; and this mind of ours is made up of mentations, not merely of the cerebral cortex and sub-cortical ganglia, but of the mentations of the cells of the whole body. The muscle-cell feels its stimuli and responds adaptively; so does the liver-cell, etc. These cells *feel* stimuli, and feeling, however simple, is *mental*, not physical.

As a matter of fact, muscular movement is known to be directly connected with cortical memory enregistrements. Every muscular feeling of pressure or movement enregisters its “memory-structure” in that part of the cortex near the fissure of Rolando. True, such muscle-memories soon become sub-conscious and automatic and even reflex, but that does not remove the phenomenon of muscular movement from the category of mentation—it changes it from conscious to sub-conscious mentation. Sub-conscious mentations are generally too *quick* to enter consciousness.

Now, the lowest order of cortical enregistrements are those made by the simplest sense-impressions that are capable of producing a consciousness, *i. e.*, a sensation. If the impression does not produce a sensation, no enregistration takes place; but if the stimulus is *felt*, then the feeling is *remembered*, and that memory is located in some part of the cortex. If it be a

touch-memory, it has its location; if a taste-memory, a different location; if a sight-memory, still another location, and so on. Memories of muscular movements consist of touch-memories, pressure-memories, memories of the energy of muscular movement, “joint-feeling,” sight-memories, etc.

When the cosmic stimulus (of pressure, light, heat, etc.), affects the same organs (mind-organs), energy is transformed (and released), in that sense-organ, and a motion travels along the centripetal nerve, passing often one or more ganglia where other transformations may occur, and impinges through the white brain-fibres upon the terminal process or ending of such a fibre in the cortex, *i. e.*, upon a brain-cell. If this transmitted motion is too short in *duration* and too weak in *energy*, there will be but a slight effect upon the cell or cells acted upon. But if of sufficient strength and duration, then the form of motion received from the sense-organ produces *feeling* in that brain cell—the natural cell-consciousness of that little organism aroused by its appropriate stimulus. I don't mean that *I* feel that cell-feeling in one of my own brain-cells, but the cell *feels* it. I do not become conscious of its consciousness, so to speak; but when the cell *feels* its appropriate stimulus (which, for a sound memory cell is not a sound wave, but that form of energy which reaches the cell through the white brain-fibre, an energy totally unlike sound), how does it feel? It feels by the *modus operandi* of metabolism; it *mentates*; it responds to this feeling and acts. The result of that act produces what we call our own consciousness of that sensation—in my own nomenclature, *we perceive* the *sensation* and the result is a percept memory. If we did not perceive it, it would not have been a sensation. Hence, the first step in brain-building is the enregistration of percept-memories of the simplest sensation of the senses, of *all* of the senses and of all of the possible typical sensations of each sense.

Our educational systems leave out many senses and a majority of the possible classes of sensations of each sense ; hence, many cortical areas are *fallow* of first-grade brain-tissues. Our educational systems do not register these percept-memories taxically, or in naturally related groups, but chaotically in the extreme. In the same hour, sight-percepts of various grades and all other kinds of percepts are promiscuously jumbled together, and they are not systematically reiterated the next day and the next until a finished and associatively integrated structure results.

But this is a *long* subject ; this conception of and the data on which it is based ought to reorganize kindergarten instruction.

The brain-cell feels the stimuli transmitted to it from the sense-organ, and the cell responds and we perceive a sensation. The action of this transmitted energy upon the cell is multiform. I will mention only that of the *metabolism*, which is the necessary concomitant to cell-feeling. This transmitted energy produces a *chemical change* in the brain-cell, and deposition of matter takes place and the cell *grows*. It has, by that chemical change, acquired an additional supply of substance and new molecular compounds and arrangements. These new compounds place new structure in that cell, new mind organs with which to function. Repetition of that *feeling*, of that *same* sensation, by that same cell, simply augments the quantity of that *kind* of deposition of new substance in the cell—if reiterated from day to day for several days a perfect percept memory will have been created. Now, we can put much or little matter in that cell for that percept-memory ; we can build as much of that kind of a memory as we desire. We do much besides, but I will not now describe the other phenomena?

If I vary the intensity of the stimulus, I will vary the rate of deposition or growth—the rate of the nutritive metabolism of that cell—the rate of the blood

supply to the cell, etc., all of which I have proven experimentally.

Now, if I change the stimulus in quality, but not enough, to bring a new brain-cell into activity, then the cell will feel that stimulus differently and will produce a different response. A different part of the cell will grow and another *new structure* will be acquired by that cell, it will acquire more mind. The discrimination of different qualities in such a sensation will produce differentiations in that newly acquired cell-growth. As the cell, by repetition of its functions, acquires growth, its nutritive processes will increase in number and size. Now, so far as morphology is concerned, muscle-memory cells differ but slightly from sound-memory cells, or sight-memory cells, and so on ; but chemically, there are also slight differences—they stain differently with the *same* reagents. Other differences I will now point out.

When all the percept-memories have been enregistered and developed, as you will observe, there is no distinction in *kind* between *muscular* effort and *mental* effort ; muscular effort is mental effort. But there is a distinction between muscle-memory cells and sound-memory cells and taste-memory cells, and so on—a morphological distinction, a chemical distinction and a topographical distinction. The internal anatomy of these cells differ also, as I have fully convinced myself, but I cannot without careful repetition of my new and better apparatus give an intelligent description of what I mean.

As a cell grows by repetition of function, the pigment of the cytoplasm increases in quantity and alters in quality. The plumose panicles (dendrons), increase, *not with age*, but with the functioning performed by these cells. They do not increase in number and size if that functioning is prevented, as my experiments prove.

I have not time to consider second stage brain-building now. I have explained how the cells grow by percept enregistration.

Just as a percept consists of an integration of two or more sense-impressions, so an integration of two or more percept-memories constitutes an integrant of the second order—let us call it (provisionally) coquition. A coquition, let us say, for want of a better term, consists of an integration of two or more percepts. And let us call an integrative association of two or more coquitions, an image, and so on, to higher stages.

I have never taught that a conscious mental effort creates a new brain-cell. I have taught what my experiments clearly prove, that each kind of a mental activity produces definite *structural changes* in certain brain-cells, increasing their size, the number of dendrons and the complexity of the cell's internal structure, both morphologically and anatomically, and also chemically. Cells in the sight-areas of a dog killed at birth compared with the same kind of cells in a dog killed nine months after birth, show a certain natural growth in the number of cells capable of being seen by the microscope, but the advent of the new cells may be simply the development of incipient cells into a sufficient growth capable of being stained—the cells may have been there from birth, though I doubt it. Such a dog deprived of light for a month after birth does *not* exhibit so many cells; and such a dog specially trained by brain-building methods exhibits a *far greater* number of cells than one not so trained. The conclusion is in favor of the theory that new cells are formed. My next experiments, I think, will *settle* this question. It forms no part of my system of teaching and is not essential to any of the conclusions I have announced in my article in the July *Monist*, or elsewhere, or to my theories of the science of mind and the art of mentation. Can I build more tissue in the brain? Yes. I can put more structures *on* and *in* every cell. I can put a greater number of functioning cells in every area of the brain. If they are not actually new cells, the practical result is the same, for if not

thus builded and developed these cells, if they exist, were useless. These immature, dormant germs or beginnings of cells do not produce or aid in producing thought. Millions of them might remain in a square inch of one cortical cell-layer without having one single memory enregistered in one or all of them. If, in that area, I put well-developed, structurally-complex, normally functioning cells, then I build brains and give that person more mind. It matters not practically, whether I put a *new* cell in that area, or develop neuroblasts that would have otherwise have remained dormant, and atrophied, into actively mentating cells.

If I put in the brain areas numbers of such functioning cells that would not have been placed there by the usual education and experience, then I can say that I can give pupils more mind with which to get an education—and this is just what I can do.

But I think it can be proven that simple neuroblastic cells—the common type out of which all kinds of nerve-cells have evolved—can be developed into a grey-matter cell, and finally a brain-cell with neuron and dendron, etc. In the neuroblastic stage, and as the terminal of a white fibre, the cell has not acquired any of the morphological or chemical characters of a memory-cell. It can be developed by repetition of its appropriate stimulus into a brain-cell of *great complexity*, and this complexity will be different according as that stimulus has been applied in quantity and quality, etc. We can *neglect* to develop them in certain brain areas, can over-develop in others, can give prominence to what areas we please, and thus *put in* or *omit* active, full grown cells just as we elect. This is brain-building in one of its aspects. There is ample and conclusive evidence that *new* structures can be put in a cell, and that any person can be given a greater number of brain-cells (not neuroblasts) than he would otherwise have procured by usual modes of life and education.



A neuroblast is not a brain-cell any more than a sperm-cell is a man—not so much so—because the neuroblast can be developed into widely different memory structures of the same class, *e. g.*, the different staining of the same cells by the same reagent, when the rabbits were in one case compelled to live in red light only, and in another case, in green light only. These different rays produced different depositions in the same class of cells. The nervous system is quite plastic—like the salamander renewing its leg—the grey cells can renew their processes.

To the question, “Can effort create new fibres?” it can be said without doubt that it will increase the number of active fibres in a cerebral connective tract. But for practical purposes, it is not necessary to determine whether this is true or not. An undeveloped and non-transmitting fibre is useless. If these fibres are brought into use, that is what we want. I am sure that in the auro-optic tract of rabbits, special training has enabled me to increase the number of fibres that can be counted with a microscope as much as one hundred times. Whether there were undeveloped, already-formed invisible fibres there, I cannot say, but I *do not believe there were*. It may be that parallel to these fibres there were rows of cells, or primordial tracts incapable of being studied, because too much undeveloped. But practically, I can take a young dog and make a map of his brain-fibre tracts, and by brain-building I can develop any *one* of these tracts, or any combination of several of them, so that when the dog is killed and examined these tracts will be an hundred fold richer in the number of fibres than any dog not thus trained. It is the result I am after. If I can put one thousand active connective fibres in a tract where otherwise, there would only have been one hundred—and I can!—then I am satisfied. But I think I can prove the formation of new fibres, and I think I know *how* they are formed.

Nerve-fibre ceases to be formed, or to

grow, when it ceases to functionate. It is not connected with age. In old age many cells no longer functionate and they atrophy. As long as functioning takes place through a fibre, it *grows*. I think that very few fibres in the human fibre-tracts are formed after the sixth to the tenth year.

There is a normal periodicity in every human life when each class of enregistra-tions should be made; failing to be made then, they can never again be properly made.

418 S. Broad street, Philadelphia.

### ARSENITE OF COPPER—ITS THERAPEUTIC APPLICATIONS.\*

By MARK W. PEYSER, M. D.

I wish to direct the attention of the members of the Academy to a medicine that has recently received a large share of praise in intestinal troubles. What first attracted me to it, were the writings of Dr. John Aulde, of Philadelphia, and others in the *AMERICAN THERAPIST*. The remedy is the arsenite of copper, and while I shall not go deeply into its physiological action, let me give you an outline. Copper exerts an astringent influence in two ways. First, it is a true *antiphlogistic*, contracting the blood vessels directly, by acting upon their coats; second, it is an *astringent* by virtue of its power of coagulating albumen. It is to be noted that these properties reside in copper in small doses only. Large ones produce an opposite effect, heightening inflammation, if this exist, due to irritation of the individual cells. Copper is eliminated largely by the liver; and its excretion, in all probability, will heighten the effect. Let us see the action of the acid constituent of the salt. Arsenic, in small doses, on reaching the gastric and intestinal mucous membranes, does not combine with the albuminous content, but remains unchanged; stimulating the nerves and

\* Read before the Richmond Academy of Medicine and Surgery, Sept. 10, 1895.

vessels, causing a sense of heat and hunger, and increasing the functions. In these small doses, arsenic is employed in some cases of gastric dyspepsia, and in diarrhœa. If the dose be increased, we readily pass from a state of physiological stimulation to one of pathological irritation of the cells, the result being irritation of the stomach, and diarrhœa from intestinal excitement. Arsenic is excreted by the liver, producing its alterative and stimulating effect.

Leaving this hurried description of the action of arsenite of copper, let us get on to some of the results.

The first case in which I administered it was that of a woman, aged 30, pregnant four months. She had had no movement of the bowels for three days, to correct which, her husband administered a whole bitter apple in a gill of whiskey. The second day after, I was called, and found a dysentery, with obstinate vomiting; strangury and sanguineous discharge from the uterus, with other symptoms manifesting threatened abortion. Having a sample bottle of  $\frac{1}{100}$  gr. arsenite of copper tablets with me, and thinking this a good test case for its exhibition, I directed one tablet to be dissolved in four ounces of boiled water and a teaspoonful of the solution to be taken every ten minutes until all was taken. Then a tablet was to be prepared in the same manner, and a teaspoonful taken every half hour. On calling the next morning, my surprise was great to find the number of operations had been reduced to three; the flow had stopped, as had all pain. The following day the patient was as well as ever.

The second case was that of a woman aged 25, nursing. She suffered from intestinal indigestion and said she was subject to repeated attacks of diarrhœa. I prescribed the tablets as above, and on the third day the patient was discharged.

F. M., man, aged 30, auto-intoxication, afflicted with diarrhœal discharge, vomiting, dizziness, anorexia for eight days, Arsenite of copper was directed as before;

diet regulated. Discharged on the 4th day.

Lelia R., aged 8 years, abdominal tenderness, retching, headache; temperature  $101\frac{1}{2}^{\circ}$ ; discharges profuse, and ill-smelling. This patient presented a typhoidal appearance. Treatment was begun with  $\frac{1}{100}$  gr. doses of calomel and ipecac, followed by the arsenite of copper solution in teaspoonful doses every half hour. The day following the discharges had lessened in number and the temperature had fallen to  $100^{\circ}$ . The dose was changed to a teaspoonful every hour and on the fourth day the operation and the temperature were normal.

Mary J. G., aged 8 years, presented the same train of symptoms as the case immediately preceding; but besides, was exceedingly ill-nourished. She was put on the same treatment and in eight days was pronounced cured. The procedure was followed, however, by the use of emulsion of cod-liver oil, and the child presents now a very healthy appearance.

These cases prepared the way for what follows. They were, so to speak, the preface for the text studying the action of arsenite of copper and observing the clinical results. I determined to use it in the first case of typhoid that occurred in my practice; but when the opportunity came, I was somewhat chary.

Annie B. S., aged 17 years, was taken on August 13, with headache, pain in the back and limbs, epistaxis, constipation. When I saw her at 11 A. M. she had a temperature of  $101\frac{1}{2}^{\circ}$ . Calomel, quinine and Dover's powder were prescribed, to be followed next morning by Epsom salt. In the afternoon she had a temperature of  $99\frac{1}{2}^{\circ}$ . August 14, 11 A. M., pulse 90, temperature  $100^{\circ}$ ; 4:30 P. M., pulse 86, temperature  $102\frac{1}{2}^{\circ}$ . Abdominal tenderness, borborygrin, tympanitis and diarrhœa became prominent. Hydrochloric acid and turpentine stupes were advised. August 18, temperature  $102^{\circ}$ . Aug. 19, 11 A. M., pulse 92, temperature  $99\frac{1}{2}^{\circ}$ . The symptoms, which had abated, became more severe, and the patient was drifting

into an asthenic condition. I determined to use the arsenite of copper, and prescribed as in other cases. August 20, 6 A. M., pulse —, temperature  $100\frac{1}{2}^{\circ}$ ; 10:30 A. M., pulse 76, temperature  $99^{\circ}$ ; 4:30 P. M., pulse —, temperature  $103^{\circ}$ . No effect as yet. Aug. 21, 10 A. M., pulse 86, temperature  $99\frac{1}{2}^{\circ}$ ; 4 P. M., pulse 96, temperature  $100\frac{1}{2}^{\circ}$ . Stools becoming natural. Aug. 22, 10:30 A. M., pulse 76, temperature normal; 4:30 P. M., pulse 82, temperature  $99\frac{1}{2}^{\circ}$ . Aug. 23, 10:30 A. M., pulse 78, temperature normal; 4:30 P. M., pulse 80, temperature normal. The temperature never rose again; the stools became healthy, and the patient made an uninterrupted recovery. Abdominal tenderness and distension disappeared on the second day after beginning the administration of the solution.

There could be no mistake in the diagnosis. It was a case of typhoid fever, pure and simple, and severe; the patient living in a house back of which flows a creek which is nothing more than a moving cess-pool.

During part of this summer, in the absence of Professor Gordon, I have had charge of the jail, affording further opportunities for testing of the arsenite copper. Several cases were treated, and in not a single one was failure recorded. In fact, in only one case have I seen a failure; but even here, it cannot be attributed to the agent, as the patient was almost moribund when first seen. The case was that of a woman aged 65, with a severe dysentery of two weeks' standing before I made my first visit. Discharges were frequent, and involuntary; vomiting incessant. The hygienic surroundings were as bad as they could have possibly been.

Treatment was immediately begun, and in addition, enemata were given. The latter consisted of one grain of the arsenite of copper in acidulated water. By the third day, the blood ceased to appear in the discharges and vomiting lessened; but the discharges were as frequent as before. Stimulants were administered as often as

deemed advisable; but in spite of all efforts, the patient continued to sink, finally passing on the fifth day of my attendance, which was the third week of her sickness. As said before, the trial in this case was not a fair one.

Since the delivery of the above to the Academy, I have been informed by Drs. J. F. Winn and Hugh M. Taylor, that they used the arsenite of copper, the former in a case of cholera infantum, the latter in one of entero-colitis, and both with unqualified success.

I am now using the drug in a case of fermentative dyspepsia, and hope, in the near future, to report results. In passing, let me say that the reading of the paper was attended by something like incredulity on the part of some of the members present; but this is not to be wondered at in view of the fairy-like tale. However, "seeing is believing" and in a number of instances, all doubts have been satisfied; e. g., the case of the doctors mentioned above.

1220 E. Broad St., Richmond, Va.

#### DISCUSSION.

Dr. M. D. Hoge, Jr., said: "I can, because of experience, testify to the correctness of Dr. Peyser's report, as the following cases show:

Case I. Boy, of German parentage, aged 8 years, suffering from acute dysentery. When admitted to Virginia Hospital he was having from 18 to 24 operations in 24 hours. Treatment was begun with a dose of castor oil, followed by  $\frac{1}{4}$  gr. of arsinite of copper every hour for six doses, then every two hours. In the first twenty-four hours after commencing treatment, the operations were reduced in number to three. No other medicines were given, except a half-teaspoonful of paregoric one night, for restlessness. The boy was in the hospital six days, and then discharged cured. There has been no return of the sickness.

Case II. Girl, aged 7 days, suffering from entro-colitis, and having from ten to

fifteen operations in twenty-four hours. Routine treatment was tried, without success. A fair trial of the various artificial products was made, with the hope that some one would prove sustaining, but without avail. She was put on  $\frac{1}{4000}$  of a grain of arsenite of copper every hour for six doses, then every two hours. While under this treatment—and it was the only one used, the operations never exceeded four in twenty-four hours. At this time the child has fully recovered. Owing to puffiness of the eyes, on two or three occasions the treatment was discontinued. It is wonderful to see the physiological action produced by such small doses.

Case III. Man, barber by trade, aged 31 years, typhoid fever. At his residence the sanitary surroundings were very bad. When admitted to Virginia Hospital he had a temperature of  $104\frac{1}{4}^{\circ}$ . For twenty-four hours previous, operations were incessant. The patient said he sat on the vessel continuously from 9 A. M. to 2 A. M.  $\frac{1}{4000}$  of a grain of the arsenite of copper was administered every hour for six doses, then the same dose every three hours. The operations ceased entirely. On the fourth day the temperature fell to  $100^{\circ}$  and never exceeded  $101^{\circ}$ . The treatment was kept up for seven days, and then, having accomplished its object, discontinued. The patient is in a fair way to recovery. The curious point about this case is the constant delirium during the low temperature.

Dr. Jacob Michaux said he could add his mite, confirming what had been reported by the previous speakers. About four years ago he administered the arsenite of copper in  $\frac{1}{4000}$  grain doses in a case of cholera infantum, with utmost success. Unfortunately, he could not detail the case, having made no notes; neither could he understand why he did not continue the use of the remedy; but in the future he would certainly prescribe it in all indicated cases.

## Correspondence.

### COPPER ARSENITE FOR TYPHOID FEVER.

TO THE EDITOR:

Sir:—Having been much interested in your efforts in behalf of cellular therapy, and having read "Hugo Schulz' Aufgabe und Ziel der modernen Therapie, Leipzig, Thieme, 1890," I decided three years ago to try one of your modes of treatment, and my choice fell on copper arsenite in typhoid fever. In order to be perfectly certain as to the effects of the copper arsenite *alone*, I refrained from giving any other drugs whatever, the glorious HCl mixture included. I must mention that, from old habit, the patients received a gr. v dose of calomel, followed by magnes. sulphate if I was called soon enough to risk it. Here are the results (with copper arsenite only):

- No. 1 col'd, fever never above  $103^{\circ}$ , recovered
- No. 2 " fever never above  $103^{\circ}$ , recovered
- No. 3 white, fever never above  $103^{\circ}$ , recovered
- No. 4 " fever once above  $103^{\circ}$  bath every 4 hours for 2 days,—recovered
- No. 5 col'd, fever never above  $103^{\circ}$ , recovered
- No. 6 " fever never above  $103^{\circ}$ , recovered
- No. 7 " fever once  $104^{\circ}$ , bath every 4 hours for  $1\frac{1}{2}$  day, recovered
- No. 8 " fever never above  $103^{\circ}$ , recovered
- No. 9 white, fever above  $103^{\circ}$  for one week, bath every 2 hours, recovered
- No. 10 " fever never above  $103^{\circ}$ , recovered.

You see that I used Brandt's method only three times, and only for a very short time with one exception. I gave one tablet of copper-arsenite  $\frac{1}{4000}$  grain dissolved in four ounces of water, one teaspoonful to be taken every hour when awake. Whiskey, strychnine and iron were only given after convalescence began, and the only thing I had to complain of was that all my cases were rather constipated. This I relieved with glycerin suppositories very easily. I had no hemorrhage, no adynamia, no delirium, except some muttering during sleep, in short, no complications at all. I may have been fortunate in having only light cases, but as I had many bad ones before, under the symptomatic plan of treatment, I attribute these results to the copper arsenite suggested by you, and shall treat all my future cases on this plan, until a better one presents itself to my notice.

FRANCIS JUAT, M.D.

Fairly's, N. C.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.  
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## Editorial.

### WHOOPIING COUGH.

In directing attention to the interesting and suggestive paper of Dr. PORTEOUS, on Zymotic Diseases, particularly his remarks relating to the various popular methods of relieving whooping cough, together with a suggestion as to the physiological basis, the writer begs to bring forward a mode of treatment which has served him well in a number of cases. It consists in the administration of ozonized oxygen, originally suggested to the writer by Dr. S. S. WALLIAN, for the relief of pulmonary and bronchial affections. It is well adapted to adults, but children as young as six years may be instructed regarding the inhalations. Whether this ozonized oxygen would prove as effective if administered by the bowel is a question not yet determined, although if we assume that the ozone exercises a local influence, either upon micro-organisms or the nerve-supply, it would probably not prove so effective.

Ozonized oxygen is prepared by passing oxygen gas through a watery solution of hydrogen dioxide. The gas can be prepared in the physician's office by means of a portable generator, or it may be ob-

tained direct from manufacturers in cylinders. In either case, this gas is taken through an inhaler, the bottle of hydrogen dioxide being introduced between the generator or cylinder. When once a child has learned to "draw" the gas through the liquid, his curiosity is aroused and he becomes interested at once in the novel performance. A child five years of age can take from ten to twenty gallons of oxygen gas daily.

The results of treatment are usually most marked; a distinct change occurs in the general condition of the patient, more especially in relation to the cough. Of course the cough does not entirely subside, but after the first twenty-four hours it is not at all formidable, and the "whoop" disappears. In fact the only period when cough is at all troublesome is along after midnight and in the early morning hours, because the administration of the oxygen is discontinued. Under this method of treatment the appetite improves, there is an absence of complications, and in less than two weeks, usually, if the weather is favorable, all symptoms vanish.

### CELLULAR THERAPY ON THE CONTINENT.

Evidences that the doctrines of cellular therapeutics is taking a firm hold on the affections of the medical profession, both at home and abroad, are beginning to manifest themselves in various ways, but only to a limited extent through the columns of our medical journals. It is, however, but a question of time when this universal law will be fully recognized and advantage taken of the principles underlying it. In these days of rapid transmission of ideas, together with great mental activity in the different centres of civilization, it is almost impossible for one man, alone and unaided, to discover or invent something entirely and absolutely new. So it is with cellular therapeutics; the principles underlying the doctrine, the physiological basis of scientific medica-

tion is now very generally recognized by the more advanced practitioners, but the name—cellular therapy—is new and covers the notions entertained by advanced medical men most fully. Its appropriateness cannot be denied.

The foregoing remarks have been prompted through the perusal of Dr. SANGREE's interesting account of his interview with Prof. LIEBREICH, of Berlin, during his trip abroad last summer. In attempting to elucidate his idea as to the *modus operandi* of cantharidate of soda relieving or curing the lupus manifestations, Dr. LIEBREICH teaches that the smallest dose of the irritant acts as a stimulant to the diseased cell, enabling them to eliminate most products more rapidly.

Particular attention should be called to an erroneous impression which has existed in the minds of professional men in relation to the therapeutic virtues of a remedy. That is, the size of the dose. In many instances, as in the case of administering hypnotics or anodynes, the larger the dose the more pronounced the effect. In the case of irritants, such as arsenic, strychnine, etc., a dose sufficiently small to produce moderate stimulation will serve the purpose, while an *irritant* dose will only further increase an already disordered cell-function. In our efforts to erect a lasting superstructure upon cellular therapy as a foundation, legitimate or normal dosage is of the utmost importance.

### CELL METABOLISM.

Cell metabolism gives promise of becoming a most fascinating study. Special attention has been given to the study of cells from different points of view, namely, anatomically, physiologically, morphological and chemical, and more recently Prof. GATES has investigated the cell from the psychological standpoint. In order to grasp the vastness of this subject we must learn some of the first principles bearing upon cell metabolism. For ex-

ample, we know, or think we know that certain gastric cells perform certain peculiar and necessary functions, else digestion would prove defective. The same is true also of certain intestinal cells; it has been shown that they will take up and dispose of certain pabulum and refuse other products, facts going to show, as pointed out by EWALD, that these cells perform their own proper functions of their own volition. He teaches that they do this independent of the nervous system, although it is not beyond the range of possibilities that certain phases of cell function and cell metabolism may depend upon an undiscovered internal nerve-supply. Indeed, this supposition is not at all improbable, as the following illustration will show. Suppose a person to be in perfect health, contented and happy. Prof. GATES says the condensations of the nasal exhalations will respond in a special manner to certain reagents. Let the same person experience pain, sorrow or anger and new elements are introduced, the condensations showing abnormal conditions as determined by various reagents. And what will appear more peculiar still—indeed, almost incredible—is the fact that the different conditions, pain, sorrow and anger, are indicated by different reagents. It will be evident, therefore, that cell metabolism is a matter of the utmost significance, since such marked physical changes could not take place without corresponding, important physiological metabolism.

Prof. GATES has spent many years in studying the various stages of cell metabolism; his experiments upon dogs, rabbits and guinea-pigs run up into the thousands, and the results of his investigations, from present indications, bid fair to open a new era of scientific medicine.

It can be said of scientific medicine of to-day that it has been halted at diagnosis. For many years our German confreres have been accused of practising "Diagnosis" instead of "Medicine." It has even been intimated that an autopsy to

establish the diagnosis was often looked forward to with a livelier interest than the recovery of the patient. In addition, however, to diagnosis we do know something definite about the immediate effect of drugs. What are the remote effects of many drugs given in medicinal doses, we know absolutely nothing. And even in cases where we know the remote effects to be harmful, as in the case of potassium chlorate, how many physicians consider it worth while to caution their patients against their use?

To most practitioners cell metabolism will have but a passing interest, unless we can impress upon them the great importance of this study in determining the remote as well as the immediate effect of drugs.

We cannot close these remarks without a word of comment upon the apparently normal results of cell metabolism in health, the function of cells singly and in groups as a resisting force against the invasion of disease, because these thoughts so forcibly impress upon the mind the serious import of any derangement of cell metabolism from the injudicious or reckless use of remedies, the remote effects of which are unknown.

### *JAMES COLLINS, M. D.*

Dr. James Collins, for many years a widely-known and highly respected physician of Philadelphia, died suddenly on the morning of October 7, 1895, aged 65 years.

For several years past Dr. Collins has enjoyed only fairly good health owing to septic infection which occurred through his attendance upon a case of neglected miscarriage. Up to this time his health had been remarkably good, although he accomplished a wonderful amount of work. He had a large clientele, and as a consequence his duties were most arduous, and in inclement weather the task was too laborious. Yet, in the midst of his labors, he kept pace with the advance

in medicine and surgery, through current medical literature, and the writer seldom called at his office that he did not find on his table a recent issue from the press. Dr. Collins was also an active member of several medical societies, and so far as his professional engagements would permit, he attended the meetings. Indeed, only the Wednesday evening before his death he presided over the deliberations of the Philadelphia County Medical Society.

The contributions of Dr. Collins to medical literature were not numerous, although always of permanent value to medical science. Several have appeared in the *AMERICAN THERAPIST* during the last few years. Dr. Collins contributed an important communication to the Ninth International Medical Congress, Washington, D. C., 1889. He attended also the Tenth International Congress, Berlin, 1890.

Dr. Collins was born in Pineville, Buck's County, Pa. He graduated from the Medical Department of the University of Pennsylvania, 1860, so that at his death he had been in active practice for the period of thirty-five years.

Soon after graduating Dr. Collins was appointed Surgeon of the Third Regiment of Pennsylvania Reserves, and went with his regiment to the front, where he was captured and confined in Libby Prison ninety days. Later, he rose to the rank of Brevet Lieut. Colonel and had charge of the government hospital near Hampton Roads, where he remained until the close of the war.

Dr. Collins found time among his multifarious duties to take a deep interest in educational affairs, principally the common schools of the city, and the writer is of opinion that he was a school director at the time his death.

Dr. Collins was a man with very decided personal traits, but these traits only made him more dear to his friends, as well as his patients and admirers. He was a man of most sterling honesty; he was a faithful friend; he was a most painstaking, and consequently, successful, practitioner; he was an accomplished gentleman, a close observer and student of human nature, and withal a most entertaining conversationalist. In the death of Dr. Collins, the medical profession loses an active member, the public a faithful servant and good citizen; his family and personal friends will long remember his sterling virtues.

## Current Literature.

**EXTERNAL AND INTERNAL USE OF GUAIACOL.**—The unquestioned value of guaiacol in a wide range of therapeutic indications, has helped along its adoption lately in many new directions on the strength of recommendations from good authorities; but that the product is not free from shortcomings, and that its application must be carefully studied, is shown by Dr. J. M. Anders in a recent issue of the *Therapeutic Gazette*. We quote his conclusions, based on the interesting report under above caption:

1. Guaiacol is an efficient local sedative, as shown by its analgesic power when employed in painful affections.
2. It is more potent when administered hypodermically than when it is applied to the skin surface.
3. It has not, in practically afebrile conditions, produced any noticeable lowering of temperature or other unpleasant effects in my experience.
4. When employed in febrile affections, it may cause objectionable effects, such as rigors, followed by high temperature.
5. Guaiacol seems to be powerless to control inflammatory processes, particularly when acute in character.

**HEMATOPORPHYRIN IN THE URINE DUE TO THE ADMINISTRATION OF TRIONAL.**—Dr. Ernst Schultze, of Bonn, to whom we are indebted for the introduction of trional as a remedy in the treatment of psychoses, recently reported the first case of trional intoxication. The patient, a woman, 54 years of age, suffering from melancholia, took within about a month 24–25 gm. (3 vj) of trional. She became more emaciated, refused to take nourishment, suffered from obstinate constipation, frequent collapse, epigastric pains, vomiting. When in this condition she was removed from the hospital by her relatives, soon after dying at her home. A *post-mortem* examination was not permitted. A few days before her death the urine was noticed to

be of a peculiarly red color, which, upon chemical and spectroscopical examination proved to be due to the presence in the urine of hematoporphyrin. As hematoporphyrinuria has frequently been observed after the use of sulphonal, it is not to be wondered at, that trional, so closely allied to sulphonal, should have the same effect. The red color of the urine is a symptom of grave importance, and requires the immediate discontinuance of the remedy.—*Deutsche Med. Wochenschr.* — *Occidental Medical Times*.

**POISONING BY LYSOL: QUICK RECOVERY.**—The following report of a case of accidental poisoning by lysol, by Dr. A. J. Comstock in the *Medical News*, is chiefly interesting as evidence of the comparative harmlessness of this antiseptic; if carbolic acid had been in use, under the same circumstances, the result would have been different:

The patient is a healthy woman, twenty-four years of age. Three days after her confinement she was given, by mistake of her nurse, one-and-a-half tablespoonfuls (fully six drachms) of lysol, instead of the laxative ordered. The drug was taken early in the morning upon an entirely empty stomach, but was diluted with two ounces of coffee. The woman was immediately seized with violent burning pain in the mouth, throat and stomach. It was forty-five minutes before a physician reached her, and in the meantime nothing in the way of a diluent or emetic had been administered, and vomiting had not occurred. Not being in town myself, another physician was called. He reached the patient forty-five minutes after the accident, and at once administered oils, eggs, diluents and emetics. She was then in a partially comatose state, very pale, perspiring profusely, and with the muscular system in a state of complete relaxation. Respiration was slow and shallow and the pulse imperceptible. As emesis did not readily occur, the physician returned to his office for a stomach-pump,



but upon his return found the woman vomiting freely. The poison had been retained two hours and forty-five minutes. After the vomiting consciousness partially returned, but the patient remained very weak. I first saw her three hours after the poison had been swallowed. She was then still partially unconscious, with great muscular relaxation, a very weak and rapid pulse, and the pupils widely dilated. I at once administered another emetic (gr. xx of ipecac in powder) and large quantities of warm water, until free emesis occurred, twelve minutes afterward. The woman was then given small and frequently repeated doses of magnesium until free purgation was produced. The after-treatment consisted of flaxseed tea, bismuth and restricted diet. The subsequent gastritis was light, but for forty-eight hours there was partial suppression of urine, with albumin present in large amount. The albumin disappeared on the fourth day and the secretion of urine became re-established. It is now a week since the accident and the patient is apparently convalescent.

**SERUM THERAPY.**—From the *British Medical Journal* we take the following terse review: Schaefer (*Arch. gen. de Med.*, August, 1895,) discusses the present position of the serum treatment, after referring to the researches upon which it has been built up:

(1) *Tuberculosis*.—Richet and Hericourt were the first to treat the disease with serum obtained from refractory animals, but up to the present moment no very good results have been obtained.

(2) *Rabies*.—Serum treatment does not appear to have a great future, as immunisation by intensive vaccination gives greater success. (The latter is the Pasteur treatment.—Ed.)

(3) *Pneumonia*.—After referring to the investigation, the author observes that the the serum treatment deserves to be considered. The reason that it has not been more generally adopted is probably on

account of the difficulty of obtaining the serum from immunised rabbits.

(4) *Enteric Fever*.—Here the clinical application of laboratory facts has not given any very good results. This may be partly due to the length of time between the penetration of the poison and the treatment, and partly, possibly, owing to mixed infections.

(5) *Typhus*.—The injection of serum from patients who had suffered from typhus was adopted, with good results, by Legrain in an epidemic in Algeria.

(6) *Cholera*.—The cholera peritonitis of animals is very different from cholera in man. Behring recently announced that he had obtained a curative serum, but the results have not yet been published.

(7) *Syphilis*.—The serum from the dog and lamb have been employed, and sometimes with good results.

(8) *Streptococcus Infection*.—Animals have been vaccinated against this infection. The serum so obtained has been used in puerperal fever with good effect. It has also been employed in erysipelas and angina. (Marmorecks serum is an assured success.—Ed.)

(9) *Cancer*.—The results as yet obtained are insufficient to carry conviction. (Treatment with the toxine of erysipelas and b. prodigiosus promises earlier success.—Ed.)

(10) *Tetanus*.—Well-marked tetanus is very difficult to cure in animals, and thus it is not to be wondered at that the results obtained in man are not conclusive. The serum, however, provides a valuable prophylactic agent against tetanus. (See favorable report in this issue.—Ed.)

(11) *Diphtheria*.—It is in this disease that the serum treatment has registered its greatest triumphs. Where mixed infections exist the results have naturally not been favorable.

The slight accidents caused by the treatment are to be disregarded, in view of its remarkable efficacy.

The author then refers to the successful application of the serum treatment to snake-bites. (Calmettes' serum is in use in India, and good reports have been published through the Pasteur Institute.—Ed.) The general results thus far obtained by the serum therapy promise a successful future for this new method of treatment.

# The American Therapist.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATES.*

(FOURTH PAPER.)

By SAMUEL S. WALLIAN, A.M., M.D.

That human beings can adapt themselves, or become in time physically, and in a degree mentally, adapted to violent extremes of climate, and that they can gradually become inured to the severest vicissitudes of their meteorologic environment does not prove that the process of acclimatization is not a trying ordeal, to which many individual organisms succumb. In other words, bare survival is very far from being physiological victory.

It is evident that the highest physical, intellectual and moral development of the human type has yet to be attained. The ideal man has not yet appeared. Life on this globe has thus far been tentative. The restless and inquisitive spirit of the race has constantly urged it to push into the crannies and by-ways of creation. Instinctive enterprise and the greed of aggrandizement have goaded on toward the subjugation of savage life, and toward the discovery, penetration and exploration of arid deserts, tropic jungles and frozen zones. And the search for the one unexceptionable locality and surroundings, the ideal environment, the ultimate Eden,—as a cradle for the Perfected Composite, the Final Type, the peroration and finale of Evolution, the crowning hero of all the races,—still goes on!

Science has been busy weighing and analyzing the earth, the air and the clouds. She has invented a nomenclature for the elements, and has tabulated and described the forces. It remains for the student in biology to interpret the kaleidoscopic spectra thus far recorded, and for the therapist to inquire concerning the value of each of the isolated elements, of the nature and influence of each of the forces,—of their origin we can only conjecture, and of the numberless and complicated combinations and interrelations of the two.

The sanitarian studies climate in its bearings on the physical development and longevity of the race, and in relation to the prevention of disease. The therapist studies it with a view to learning its capabilities for ameliorating or removing disease, after it has appeared. Advising a removal from one climate to another is one of the oldest and most universal of all resources of the puzzled or baffled practitioner. He resorts to it both instinctively and from tradition. So universal is the confidence in this measure that some enthusiastic author asserts that, "Change of climate is equivalent to rebirth." Just why a temporary or permanent change of habitat and surroundings should have become such a therapeutic *dernier ressort* and panacea has never been adequately explained, usually goes unquestioned, and is certainly very imperfectly understood.

To make any approach toward a thorough or rational study of the physical causes of climate variations it is first necessary to consider the surface of the earth as to its contour, its subdivision into continents and oceans, into land and

water; and then to take into account the relative sizes and shapes of these dominant masses, their proximity and relations to each other, their respective and varied influences on animal life, and then by induction, to reach an approximate estimate of that aggregation of all these conditions and influences which we call climate, and which have in all ages constituted a virtual balance of power in shaping the destiny of the race, and writing the history of the world.

Inorganic nature exists primarily for its own sake, and only indirectly as a basis for the evolvment of plants and animals. But its functions are much more comprehensive than the few assigned to it by the laws of chemistry and physics. It is indispensable as regards the origin, maintenance, well being and education of mankind. It supplies the prime essential of human existence—a habitation,—and is the substructure on which all human institutions, societies and activities are founded.

Geographers, using the word in its broad signification, divide the land surface of the earth into three, so-called, double worlds—Asia-Australia, Europe-Africa, and North and South America. Of all these Asia, although now two thousand years behind Europe and America, in the matter of material and intellectual advancement,—civilization, is historically the oldest. Until very recent years history had not passed beyond the boundary lines of Europe and Asia, the latter standing as the cradle of nations and peoples, the nursery proper for all that has followed since man appeared and began to carve his own history and destiny. She stands, too, as the habitat of all the races of giants and mammoths—topographical, zoölogical, botanical and ethnological. Witness her immense areas, her towering mountain chains, measureless plateaus, some of which are yet untrodden by the foot of civilized man; her peninsulas, continental in size; mighty rivers, great deserts, and virgin forests; her vast em-

pires, stretching from sea to sea, under the tropic sun, and her counter empires lying beyond the frozen circle. Nowhere else on the planet are found such a flora and fauna, nowhere else such birds, insects or flowers. And no other region can boast of such monsters in the animal kingdom, whether of land or water, whether extinct, and stored away in her fossiliferous deposits, or living and roaming through her gorgeous forests and almost impenetrable jungles.

A cursory glance at a map of the land surface of the earth gives to the observer an impression that continental outlines are irregular, accidental and without structural similarity; but a more careful investigation corroborates the observation first announced by Lord Bacon, reiterated later by Forster, and in fact so self-evident as not to be disputed by any student of geographic science,—that all the continents widen rapidly toward the northward, and approach a point at their southern extremities. The analogy can be carried further by noting that all these southern points are high and rocky,—almost mountainous. Cape Horn is the fag end of the Andes; the Cape of Good Hope, originally called by the Portugese navigator, Diaz, "*Cabo Termentosa*," or Cape of Storms, is an abrupt plateau punctuated by Table Mountain, which rises nearly four thousand feet above the ocean that dashes against its base; Cape Comorin stands in the same relation to the continent of Asia, projecting its rocky height from the southern extremity of the peninsula of Dekhan; while Australia has its similar promontory in Cape Southeast, at the southern extremity of Van Dieman's Land.

Another analogous feature is observable in the practically uniform or constant protrusion or indentation of bodies of water upon the westerly borders of all the continents. Thus, in America, Chili is, as it were, compressed between the sea and the Andes into a belt so narrow that its outline resembles a topographic

serpent. Africa is encroached upon by the Gulf of Guinea; Australia by the Gulf of Nuyts; and Asia by the Gulf of Cam-baye and the Indo-Persian sea.

A third but less marked analogy is found in the fact that each of the continental masses is flanked on the southeast by a group of islands,—America by the Falklands, Africa by Madagascar and its outlying group of volcanic islands, Asia by Ceylon, and Australia by New Zealand.

Forster invented a rather plausible theory that this peculiar configuration of the continents was due to the occurrence of a tremendous prehistoric cataclysm, having its trend from southwest to northeast. According to this theory this monster convulsion overwhelmed the southerly extremities of all the continents, demolishing the great bulk of their movable material, and leaving only the rocky and unyielding promontories which now stand as continental terminals. The same irresistible onrush engulfed great masses from their westerly borders, radically readjusting their original shore lines. As a plausible sequence of this ingenious theory it was assumed that the islands to the eastward were formed from the debris displaced by this astounding catastrophe.

Pallas accepted this theory, and by it accounted for the origin of the deep gulfs which protrude into southern Europe and Asia, and for the formation of the boundless steppes and great table lands of northern Asia. In no other way could he explain the presence of fossil elephants and other tropical remains in Siberian sands. This theory has since been discarded, but there are numerous and indubitable evidences that at an early period in the earth's history an equally revolutionary transformation took place, and must have resulted from equally stupendous causes. Hence the discarding of this theory does not alter the relation of the revolutionary results that have been effected, nor ameliorate conditions which have prevailed since the human race appeared on the scene.

The southern hemisphere comprises a maximum of the water, and a minimum of the land of the earth, so that in the northern hemisphere these proportions are reversed. By shifting the line of demarkation from the conventional equator to one which skirts southern Asia and bisects Peru we would divide the globe into what would practically constitute a water hemisphere and a land hemisphere.

A further coincidence is observable in the fact that the several double worlds are respectively joined, as to their two halves, by either an isthmus or a chain of islands which suggest an incomplete or partly submerged isthmus, with the further peculiarity that on one side of each isthmus there is a peninsula, and on the other an archipelago. America furnishes the best example of this configuration, the Antilles constituting the archipelago, and Lower California exemplifying the peninsula. The component continents of the other two double worlds vary considerably from this model, so that at first glance the analogy seems forced; nevertheless it exists, in case of Europe-Africa, a not quite complete isthmus is composed of Italy and Sicily, the archipelago is plain enough, and Spain supplies the peninsula.

Asia-Australia more nearly approach the model. There is a fit substitute for the isthmus in the long stretch of islands, beginning with Sumatra, and ending with Timor, practically separating the waters of the Pacific from those of the Indian ocean. India is an ideal peninsula, and the Moluccas, with Celebes and Borneo, represent the archipelago.

Compared as to their lines of contour these several continents exhibit wide contrasts. Africa is the most compact and regular, having no large peninsulas and no indentation of its coast line by large bodies of water. Asia abounds in peninsulas, many large gulfs jut into its coast line, and large inland seas are numerous; while Europe is most irregular, its ocean-girt peninsulas and inland seas constituting one half its surface. It is, in fact,

little else than an aggregation of peninsulas and detached bodies of water.

North America is much more indented and irregular than its twin half-world, but the two halves of the New World are more nearly alike in this respect than any two of the other great divisions. A comparison of their several littoral lines with their areas, and with each other, will illustrate their marked divergence in this respect, these topographic peculiarities, more than all other influences combined, determining the conditions on which climatic variations depend.

Europe stands at the head of the list, having one mile of coast line to each 156 square miles of area. North America is next with a ratio of 1 to 228. Australia follows with 1 to 290; Asia, 1 to 459; Africa standing at the end of the list with 1 to 623.

When the controlling influence of bodies of water, both direct and indirect, over all the factors and conditions which go to make up climate are borne in mind, it is not difficult to comprehend why Europe and North America rank so far above all the other continents in the variety, geniality and extreme range of their climates; nor why Africa, of all the countries of the globe, is noted for intolerable climatic extremes and anomalies.

But the proportions and comparisons just cited have reference only to horizontal configuration. The next item to be considered is that of the vertical configuration of the continents, or in other words, what may be termed their relief or perspective. This is usually described as altitude, or elevation above sea-level. If we compare the highest mountain peaks with the entire mass of the earth they seem insignificant. For example, on a globe 100 feet in diameter the highest peak of the Himalayas would project above the general surface considerably less than an inch, and the highest of all the plateaus yet explored and measured would deviate so slightly from the general level as to be scarcely distinguishable. And yet altitude

ranges among the more important climatic factors, the thermometer falling, according to some authorities, as much as one degree of mean temperature for every 350 or 400 feet of ascent above sea-level. At the same time the mere statement of the altitude of a given place, its latitude being known, is by no means a definite or uniform indication of its climatic characteristics. The particular form of relief, whether it consists of a broad plateau, a mountain chain, or an isolated peak, must also be studied. At every recession from the coast line, inland, and every change of level amounting to 500 or 1000 feet, the whole face of nature begins to change. The soil, vegetation, atmosphere, temperature, wind currents, and the flora and fauna are all different; and this change increases with every ascent, whether abrupt or gradual, until, at a certain altitude, varying with the latitude and exposure, the luxuriant verdure and lusty, thronging, irrepressible animal life of the lower levels merges into the realms of the Frost King, where neither vegetation nor animal life are possible; and where snow and ice, and the solemn silence of perpetual desolation, replace the din of the living, moving world below!

Helix, Cal.

#### *CASE OF AFEBRILE PNEUMONIA.*

By PHILIP F. BARBOUR, M.D.,

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in the Hospital College of Medicine; Visiting Physician  
to the Louisville City Hospital; Vice-President of  
the Louisville Clinical Society, etc., etc.,  
Louisville, Ky.

I have recently seen a case which is rather out of the ordinary,—a case of afebrile pneumonia. The patient was under my care during my service in the Louisville City Hospital. She was admitted to the Hospital during the second day of an attack of pneumonia, her temperature at that time being 102° F. That day it dropped to 97° F., and remained between this and normal for eight days, the temperature never going above 99° F.

The case is interesting because so far as I have been able to find, there are very few such cases on record. The question has arisen whether they were really cases of pneumonia or not. In this case there were all the typical physical signs of pneumonia affecting the right apex. The face was flushed, and the ordinary symptoms of pneumonia with the exception of the temperature were all present. There were several interesting features: The woman was a morphine habitué, requiring large doses during the whole course of the trouble. Instead of trying to reduce the temperature, an effort was made to elevate the temperature of the patient by giving whiskey and other stimulants. Another interesting feature was ascertaining when the crisis of pneumonia occurred. I began on the seventh day, there being no fever, a series of examinations for reappearance of the chlorides in the urine. A trace of chlorides was found. On the eighth day the amount was increased, and on the ninth day there was about the normal quantity.

Convalescence was very slow. Dullness at the apex of the right lung, and prolonged expiration—bronchial breathing—remained longer than in any case of pneumonia that I have ever seen, extending over a period of fully two weeks after the crisis occurred. On the day of the crisis she perspired a little more profusely than at other times, but there was no other symptom except the reappearance of chlorides in the urine.

As to whether the opium had anything to do with the subnormal temperature, I am unable to say. I hardly think, however, that the subnormal temperature could be accounted for in this way. There was the characteristic brick-dust sputum for one day only.

SALACETOL was introduced as a substitute for salol, being devoid of the toxic properties of the latter compound. Bourget and Barbey, after clinical study, pronounce it an excellent intestinal antiseptic, particularly in choleraic diarrhoea. Other authorities have similarly endorsed it.

## MINERAL WATERS.

By A. L. BENEDICT, A.M., M.D.,

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Mineral waters comprise one of the most persistently advertised classes of remedies. Whether the spas and sanitariums, or the retail trade in bottled water, represent the greater commercial value of mineral springs, is a doubtful question; that both are of enormous proportions can not be denied. What is to be the attitude of the physician when he is "sampled" and argued with in his office by an agent, or when he finds his patient already using some mineral water that has been brought more or less openly to the attention of the public? We must bear in mind that the answer to this question has little relation to the excellencies or faults of life at the springs. Sanitariums may unite the advantages of hospital and private practice, or the proximity of natural mineral water may serve simply as an excuse for charging first-class hotel rates for third-class accommodations with a little very poor medical attendance thrown in. There are able and conscientious physicians at the head of some institutions of this sort, and there are others whose only abilities are in a commercial line and who employ assistants, not for their medical skill, but for their tact in catering to the religious or profane amusement of the guests. In general, the more popular a health resort becomes, the more danger is there of infection from rooms occupied by previous patients and from defilement of the water supply by drainage. One of the comic papers pictures a penurious person who thought he could not afford a vacation, but who had a bathing scene, with the Coney Island elephant in the background, painted on the incline of his bath-tub, so that he could stretch out in the water and imagine himself swimming in the ocean. Now, whatever the advantages of sanitarium life may be, the man who uses the bottled water from the same spring, gets

about the same relative benefit as did the butt of the bath-tub joke in comparison with one who enjoyed an actual vacation at the sea shore.

Mineral waters may be classified as:

1. Thermal; 2. Calcareous; 3. Purgative; 4. Chalybeate; 5. Sulphurous; 6. Saline; 7. Alkaline; 8. Diuretic. These are purely arbitrary distinctions, which nature overrides in various ways, and the last three classes are especially liable to confusion. We may also classify waters according as they contain  $\text{CO}_2$ ,  $\text{N}_2$ , etc., in solution under pressure. Artificial waters are now frequently made, charged with oxygen.

We may dismiss the first class immediately, as such waters, if of any value after transportation, are so from belonging to other classes.

Calcareous waters, like the poor, are always with us. There is scarcely a spring, well, brook, or lake whose water does not contain enough lime to coat a teakettle, or to supply the wants of the body. If a patient, through rachitis, tuberculosis, or other wasting disease, needs more lime than is contained in ordinary food and drink, he requires it in the form of a phosphate. None of the prominent European and American springs contain enough phosphoric acid to meet this indication, and if they did, they would be subject to the suspicion of contamination by organic matter. Thus, in ordering calcareous waters, we fulfill an indication which is purely imaginary and overlook the genuine indication for phosphates.

Purgative waters are very numerous; in fact, almost any water which contains enough mineral matter to give it a decided taste is apt to be laxative to one not accustomed to it. The chief natural purgative salts are the sulphates of Mg, K and Na. Carlsbad contains about three grams per liter of sodium sulphate, nearly as much more of the chloride and carbonate of sodium, with some free  $\text{CO}_2$ . Friedrichshall contains about five and a half grams of magnesium and sodium sul-

phates, four of magnesium chloride, and nine of sodium chloride. Marienbad contains five grams of sodium phosphate and practically nothing else of a cathartic nature. Püllna contains twelve grams of magnesium sulphate, three of magnesium chloride, and about seventeen of sodium and potassium sulphates. Seidlitz contains about eleven grams of magnesium salts, chiefly the sulphate, about three grams of sodium and potassium sulphates—all proportions being in grams to the liter. Thus the strongest of these famous waters contains in the liter—equivalent for practical purposes to the quart—not more than a full cathartic dose of combined salines, and, in all, there is some antagonism from the presence of calcium salts. Granting that these waters are efficient as laxatives or even as purgatives, is there any reason to suppose that a solution of convenient and definite strength of the one or two principal ingredients would not have as beneficial an action as if accompanied by the eight or twelve other mineral salts present in the natural waters?

Under the head of chalybeate waters may be included those containing iron, arsenic and manganese, elements used in approximately the same class of cases. The water from Brighton, England, contains nearly twenty centigrams of ferrous sulphate per liter, and is about four times the strength of any other prominent chalybeate spring in England and the Continent. Some American springs contain considerable quantities of iron and arsenic, and the action of chlorides, sulphates, etc., is sufficient to make the water of many wells chalybeate after standing for some time in an iron pipe. Mineral waters rarely contain iron except in the form of a sulphate or chloride; neither of these salts is a favorite form of iron for administration, except that the tincture of chloride of iron is much used because it contains ethyl chloride, a valuable diuretic in chronic Bright's disease, but this can not be formed except in the presence of al-

cohol. While chalybeate waters will certainly blacken the teeth, and probably also act as tonics, it is difficult to appreciate their superiority over artificial preparations of preferable salts of iron. As to manganese, it is, therapeutically speaking, at best an inferior iron, while the practical necessity of administering arsenic in standard solutions or exact divisions is obvious.

Except for ablutionary purposes, it is difficult to understand why sulphur waters should be so highly esteemed. They certainly will remove acne pustules and improve the complexion, just as any similar solution or emulsion of a sedative antiseptic will do. It is difficult to conceive of a possible internal use for hydro-sulphuric acid which is not better fulfilled by some other agent.

When we consider the saline, alkaline and diuretic waters, the active ingredients are so numerous and the classes so intermingled that it is hopeless to attempt a general discussion. Here, especially, is found a natural polypharmacy such as would make an old-timer turn green with envy. Some twenty different chemicals are contained in the various Saratoga waters. When a water does not contain enough iron, arsenic, magnesium or alkaline sulphate, carbonate or hydrogen sulphide to warrant its classification elsewhere, it is called a saline. A strong brine is always of great commercial value, and common salt is a necessary food, yet it is best administered as a condiment with meals; and the other ingredients of a saline water are found in almost all animal and vegetable tissues.

The element of diuretic waters on which most emphasis is now placed, is lithium. The Buffalo springs of Virginia contain about thirty-five milligrams of the bicarbonate in a liter, a proportion that is seldom exceeded, though I believe some agents claim as high as twenty grains to the gallon, about thirty centigrams to the liter. In other words, a patient under ordinary dosage must take from one to two quarts of water at each meal. Still,

it must be conceded that the bulk of water is in itself a valuable adjuvant in those conditions in which lithia is usually given. Every one who reads current medical literature knows that, in at least one case, multiple renal calculi aggregating a considerable weight, have been voided as the result of treatment with natural lithia water. But, it would not only strengthen our faith in the efficacy of the water but relieve a painful monotony if a new case were occasionally reported. The majority of the celebrated alkaline springs acquired their reputation before lithium became well known as a drug, and they owe whatever virtues they may possess to the carbonates of calcium, potassium and sodium, compounds inferior in therapeutic value to the vegetable salts of potassium and lithium.

We may summarize the objections to mineral waters as follows.

1. Expense.

2. Bulk of the diluent, which ceases to be an objection in those cases in which it is necessary to resort to expedients to induce the patient to take water. Women, especially, often lose their taste for water without correspondingly increasing the ingestion of other liquids or juicy fruits. In such cases, the indication for flushing out the system and rendering the excretions and secretions bland, is so urgent that we are justified in using a little deception in the endeavor to introduce  $H_2O$ . But the fact that the patient will more readily take water from a labeled bottle, need not blind us to the fact that it is the water and not the mineral that is doing good.

3. The presence of a large number of minerals which are either useless, or interfere with the action of the more important ingredients, or which are positively injurious.

4. The variability of the proportion of the active ingredients in the same spring at different times, and the utter lack of any general standard to facilitate the memorizing of doses.



5. The possible presence of organic matter and bacteria. One spring, by official analysis, contains 6.6 grains of organic matter to the gallon. As has already been intimated, a spring that has become associated with a popular resort, is especially liable to contamination.

In order to obviate all but the first and second disadvantages, several companies are now preparing artificial waters, the basis being a distilled and, therefore, supposedly sterile water. One of these brands is used by the bacteriologist of Buffalo in his laboratory, as he has found it chemically pure and absolutely free from germ-life. In cities not so fortunate as Buffalo in securing a pure water supply, bottled water for domestic use is greatly to be desired as a safe-guard against infection. For such use it is best to recommend a water that has been distilled and subsequently aerated or charged with the few salines common to all natural waters. Such artificial waters are often charged with oxygen, and are to be preferred to CO<sub>2</sub> waters in diseases of diminished vitality and suboxidation.

As a rule, the less mineral matter a water contains, the better. If there exists a positive demand for any particular chemical, why not administer it in the proper dose, unmixed with natural adulterants, and in such dilution as may seem most appropriate? Except where there is some obstacle of ignorance in the way, we prefer the alkaloid or glucoside to the crude plant. In the case of digitalis, we are not yet in a position to select any one of the several glucosides nor to improve on nature's combination. In the case of aconite, we have to deal with an active principle which must be dealt out in too small quantities for perfect safety. But these are simply the exceptions which emphasise the fact that, in general, a return to the "root and herb" period of pharmacy would be a step in the wrong direction. In the case of mineral waters, we know the ingredients, we can select the important ones and discard the dross, we can handle the active principles without danger. Why should we not discard the crude output of nature's laboratory as we have so successfully done in the organic materia medica?

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## ALUMNOL AS A SURGICAL APPLICATION.\*

By Dr. E. B. SMITH,

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All along down the line of generations past, step by step, we see the improvement in the giving of medicine to the sick and in the dressing of their wounds. Man, in his finer civilized state, seems to require the talent of the world to be at hand when sickness or injury overtakes him. And so the surgeon feels a new stimulus when his co-operators place in his hands something that will be useful in aiding the parts that he repairs to again become normal.

He is constantly seeking newer remedies that will adapt themselves so that time and pain may both be cut to the shortest possible extent. Certain general inflammations are better treated with certain medicinal compounds, other inflammations respond to a certain remedy much more quickly than to any other, and so we find that certain remedies meet certain local lesions better than any other applications—these are axioms. To-day we are not bound down to any set rule or treatment of wounds or injuries. Routine applications to all lesions and wounds is far from scientific. With these thoughts in mind, I wish to present to you the application of alumnol in certain surgical cases where I have been led, by the chemical composition and nature of the drug, to believe that it is particularly adapted. The cases reported are not the only ones that I have personally treated with this remedy, but are only a few that will show the application of the remedy.

An ideal surgical application, according to our present status of tissue re-generation and bacteriology, must possess germicidal properties without at the same time interfering with or destroying local cellu-

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lar activity, and it must also be free from the danger of producing injurious effects if constitutionally absorbed.

If a powder, it should be soluble so that it may be applied either in powder form or in solution; and it should be cheap, so that a sufficiency of it can always be used. It should also promote tissue growth. It should not stain, and it would be an advantage if it caused no pain when applied. A new drug has been offered to the surgical world in the shape of alumnol, which, while it by no means fulfills all the conditions above mentioned, is, in my mind, a very valuable surgical application. Although it does not seem to possess marked bactericidal properties, it yet does promote tissue activity and thus aids in the normal healing of wounded or abraded surfaces.

The next question to be considered is: Are our ideas of the ideal surgical application what they should be? Have we the right conceptions with regard to bacteria and bactericide, and do we put a proper value on those preparations that act by stimulation?

When we put a solution of bichloride of mercury in a wound in order to prevent the growth of germs, what does it do? It perhaps kills those on the surface, and thus often, no doubt, is beneficial; but how long do germs remain on the surface? do they not in an incredibly short space of time penetrate to the interior of the cells on the surface, thence to the layer below, and so on deeper down? How, I ask, is a solution of bichloride of mercury to reach those cells and kill the fructifying germs contained therein, much less the spores, unless it kills the cells also; for how is it likely that a protoplasmic poison like bichloride will single out and destroy the germs and leave the containing tissue cells uninjured? An application that destroys the tissue cells as well as the bacteria often defeats its own object, for the reason that all of the bacteria are not destroyed and the dead tissue cells form an excellent medium for their growth and reproduction.

But whatever may be the effects of alumnol considered from a bacteriological standpoint, it certainly possesses what is commonly termed healing properties. By that we understand something that causes the cells to take on a healthy activity and promotes tissue regeneration.

The use of alumnol in the treatment of abscess cavities is one that is likely to come into general employment, since this drug is soluble in purulent secretions and therefore does not plug up the small vessels; it is not corrosive, even in 10 per cent. solutions; it penetrates more deeply than other compounds on account of the fact that the albumen or gelatine precipitated by alumnol is soluble in excess of the albumen or gelatine. The wound soon closes up, the cavity becomes smaller and the purulent secretion less, under its use.

I have had some happy experiences in this line. Indolent ulcers, especially of the leg, seem to be favorably influenced by 5 to 10 per cent. solutions. It is not irritant; does not form an impenetrable coagulum; does not exert toxic symptoms by absorption, and can be used in solutions of sufficient strength to exert a beneficial and curative effect, without at the same time setting up too much inflammatory action.

As might be supposed, it is also beneficial in endometritis, particularly the form due to gonorrhoea. I have personally had good results with equal parts of alumnol and boric acid, dry, as a local application in the different inflammations of uterus and vagina. Since alumnol is a rather powerful reducing agent it cannot be used in conjunction with such antiseptics as are easily reduced, for instance, silver nitrate or permanganate of potash; it may be used with boric or salicylic acids, zinc oxide or bismuth sub-nitrate. Chotzen recommends for vaginal catarrh the injection of a 1 to 2 per cent. aqueous solution.

A combination of alumnol and zinc oxide makes a useful application in ec-

zema, as in the following dusting powder:

R. Alum. .... dr. 1,  
Zinc oxide. .... dr. 2,  
Acid carbolic. .... gtt. 2,

M. ft. Pulv.—Sig: Local application.

Alum. has the peculiar property of adhering very closely to the surface, thus protecting the skin from the air and external irritation; this is recognized as an important point in the treatment of eczema. The alum. holds the zinc oxide down to the raw surface, and the carbolic acid, with which the two are incorporated, tends to allay irritation and at the same time acts as an antiseptic.

In this way it also answers a good purpose in the treatment of superficial abrasions, and the excoriations found in various skin diseases. Being soluble, it permits of more extended application than many other remedies, and may easily be combined either in powder, solution or ointment, with such antiseptics as boric or salicylic acids. It may not be out of place to suggest here, that the following formula will be found very useful in cystitis: Alum., 1 dram; boric acid, 2 drams; water, sufficient to make 4 ounces. M. Sig: Inject into the bladder, 1 ounce of this solution with 4 ounces of warm water; after a few minutes this may be washed out with  $\frac{1}{2}$ -pint of sterilized water.

I desire to report the following cases in which I have employed alum.:

Case 1. Mr. B., weighing 365 lbs., had suffered from proctitis and multiple abscesses of the rectum, with the resulting fistulæ that are left after unoperated cases. It has not been my experience to find as many rectal fistulæ in any one case as this man presented; there were seven distinct sinuses, extending from three to five inches and a half out in the flesh to well up into the rectal pouch. The patient also presented a typical case of fatty degeneration of the heart, which, with his extreme obesity, made it an undesirable case and one of worry and work without much prospect of good coming from it.

The parts were kept clean and well injected with peroxide of hydrogen. Under slight cocaine anæsthesia the tracts were lightly curetted, and some of the smaller openings seemed to heal to a slight extent; this curetting was repeated several times without positive results; now and then one of the fistulæ would close up, only to again form and re-open; I tried iodoform mixtures, but with negative results. I then, with the assistance of Dr. E. W. Tonkin, incorporated powdered alum. in the meshes of sterilized gauze, rolled this into a firm strand, and passed it, by means of a probe and small forceps, within the fistulous tracts. Where possible, these strands were passed from one end of the fistulæ to the other. At the redressings, where there was considerable callous material not granulating, the parts were first curetted and then again packed as described above. I subsequently had the pleasure of calling Dr. Tonkin's attention to the stimulating and healing process which the alum. brought about in this case. The patient at the present time has one blind fistula opening and another complete one, but gets along quite well, being continually on his feet from morning until night; before the treatment this was impossible.

Case 2. Mrs. W., family history decidedly tubercular, two sisters, as well as other members of the family, having died with pulmonary tuberculosis. Mrs. W. had not had the best of nourishment, nor the best of quarters for the last two or three years, and had the care of three children who had followed each other in quick succession; she presented herself at my office with an indurated, breaking nodule upon the cheek near the angle of the mouth on the right side.

I treated her constitutionally and locally for lupus tuberculosis, with arsenic and cod liver oil internally, and different remedies externally. Exhibited the patient several times at the Detroit Dental School, at the surgical clinic held with Prof. G. S. Shattuck, M. D., where we

operated upon the ulcer, using cocaine for local anæsthesia, curetting the parts well and subsequently applying the nitrate of silver stick. This was repeated several times before the class and at my office, but the breaking down and infiltration kept on, only abating after this thorough curetting and then but for a time. I then determined to use alumnol, as I had had such good success with it in indolent, varicose and other ulcers. After cleansing the face on that side and curetting slightly, without local anæsthesia, I took the powdered alumnol and with a probe worked particles of the drug well into the ulcer. I then incorporated in sterilized gauze a goodly quantity of alumnol, applied this over the ulcer and instructed the patient to keep it well in position. This procedure I repeated three times per week. Upon her next visit to the office after this dressing, I could easily notice a change for the better. The ulcer began to heal rapidly, and now at this writing, the parts show themselves to be materially influenced for the better. I cannot ascribe the result of the case to the fact that the patient was impregnated with arsenic, as she stopped the treatment for more than two weeks before I commenced the alumnol treatment. Microscopical specimens were examined and tubercular bacilli were found at two different times, though not in large quantities.

Case 3. Mrs. N., had lacerated perineum which was partly repaired at her second confinement. I operated upon her several weeks ago at the Deaconess Hospital, Detroit, and found the laceration complete, involving some of the fibres of the rectal muscles. The laceration was about five years old and presented considerable hardened tissue; this was dissected out, and a slightly modified Tait operation made, the parts being brought together with buried catgut and kangaroo tendon, and well dressed with alumnol. Healing by first intention resulted, excepting one little point like the end of a pen holder. This is but a repetition of several other

"flap" operations in which I have employed alumnol as a dressing; I use it freely. My laparotomies at the above Hospital have had this dressing for the last year, all healing by first intention.

Case 4. A case of Dr. J. F. Bennett's; necrosis of the sacrum, coccyx and ilium, due to injury; the buttocks and sacro-iliac region being full of sinuses. In this case I laid the parts well open, exposed the sacrum, lifted the sacral nerves from place, and chiseled out quite a portion of the outer plate of one side of the sacrum. The necrotic tissue had dissected its way under the great muscles of this region, making large pockets in every direction; these were curetted, cleaned out and packed with a dressing of sterilized gauze impregnated with alumnol. The parts certainly healed and progressed nicely, although the patient ultimately succumbed to pulmonary tuberculosis, from which she was suffering at time of the operation.

Case 5. Mrs. Y., 30 years of age, had suppurative bursitis of the knee joint, possibly due to gonorrhoeal infection. I treated it after incision with injections of carbolic, boric and salicylic acids and peroxide of hydrogen, with no success; one or two injections of a 10 per cent. solution of alumnol completed a cure.

Case 6. Mrs. G., 50 years of age, had a varicose ulcer near the ankle, which had existed for some months and had been treated with a number of remedies, internal and external, without appreciable effect. Alumnol was then applied in powdered form, and was followed by considerable improvement, the ulcer being now scarcely half the size that it was under the former treatment.

In conclusion, while I do not pretend to say that alumnol is an ideal surgical application, I have had the happy experience that it has promoted the healthy healing of tissues after dissipating the morbid processes that previously existed.

STEPANICZ used alumnol with good results (Sajous' Annual, 1895) in chronic and hypertrophic rhinitis, ozæna, catarrhal and follicular tonsillitis and pharyngitis.

**PUERPERAL INFECTION. \***

By LOUIS FRANK, M.D.

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Bacteriological Laboratory in the Kentucky School of  
Medicine; Obstetrician to the Kentucky School of  
Medicine Hospital; Gynecologist to the Louis-  
ville City Hospital, etc., etc.  
Louisville, Kentucky.

I was recently called to see a young woman, aged twenty-one years, who had been confined seven days previously. She was attended during her confinement by a midwife. Everything had passed off normally, the labor had been short, the placenta had come away and no trouble whatsoever had occurred, so I was told.

At the time I saw her she complained a great deal of tenderness in the pelvic region, and gave the usual symptoms of septic infection; the abdomen was very much distended, there was decided elevation of the temperature and increase of the pulse rate. Upon examination I found a laceration of the cervix, and also a laceration of the vagina. Not being prepared to do anything in an operative way at the time, I administered a saline purgative, and the next morning after a thorough purgation she seemed decidedly better. She was then put upon bichloride douches; all symptoms subsided, and she was able to get out of bed six or eight days after I first saw her, and about fourteen days after delivery. Ten days later, I was called to see her again. She then complained of a great deal of pain in the left inguinal space and in the abdomen, but more to the left side and low down, this being the side upon which there was a laceration. Digital examination at that time revealed no induration whatsoever, the laceration was still present, of course, the uterus was very large and retroverted, and there was marked tenderness on the left side. Her pulse rate was very rapid, 120 to 140; temperature ranging from 102 to 105° F., and once I think reaching 106° F. She ran down very rapidly. She

was closely watched and I examined her very carefully. There was no discharge whatsoever, the lochial discharge having entirely ceased. The uterus was not tender, but, as I have indicated, was very much enlarged.

Five days after the second series of visits I detected a beginning swelling in the left side high up in the vagina. This was very hard and indurated, beginning as I have described, extending gradually out into the broad ligament upon the left side and around the uterus, evidently behind and in front. Two days later some induration also appeared on the right side. The temperature range was then characteristic of the formation of pus. She had a chill a day or two previously. I then decided to operate upon her, and went prepared to do whatever might be necessary; but upon making an incision, the operation being done per vaginam, I opened two abscesses, one in the cervix itself and one in the broad ligament low down, which was almost ready to point in the vagina. These cavities were thoroughly irrigated with bichloride solution, being about deep enough to insert probably half the length of the index finger, and then packed with iodoform gauze.

The temperature immediately went down, and she has done very well since, though within the last few days there has been another rise of temperature; the uterus, however, is not markedly adherent, being somewhat movable. There is still some induration on that side. The tubes and ovaries can be felt upon each side; they are not diseased, nor are they tender, the tenderness being below the tubes low down in the broad ligament. She also has now more or less stiffness in the leg upon the left side, being unable to extend it, having a great deal of pain about the region of the knee, which I think is due to the inflammatory trouble in the pelvis.

This case is one in which infection undoubtedly occurred from a laceration in the cervix; it also illustrates that we may have pus in the broad ligaments, which

\* Reported to the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.

has been denied, I think, by some, being a case which I should term para-metritis. I do not believe curetting primarily would have been of any benefit. I think infection took place through the lymphatics, and do not believe curetting would have prevented the formation of pus. It is a case that will probably require further operative measures, probably an hysterectomy, opening the broad ligament if there is more pus.

The case further illustrates that puerperal troubles may occur many days after confinement, that they do not necessarily occur within eight to ten days. I think that the primary infection subsided, and there was a secondary infection really through the laceration in the cervix.

#### REMARKS.

Dr. W. H. Wathen:—I hope the case under consideration will recover without further trouble or another operation, but it depends upon two things: first, whether the septic condition of the uterus has so subsided that there is no further infection of the system through the lymphatics or veins; second, if there is no involvement of the tubes, which Dr. Frank did not seem positive about. It is possible that there is a continuance of absorption of septic matter into the cellular spaces around the uterus, or into the system; it is also possible that there is a continuance of septic infection through the tubes to the peritoneum, or through the tissues of the uterus into the surrounding peritoneum, causing local peritonitis. If this be true, further operative measures would be indicated, and nothing short of an hysterectomy will then perfectly cure the patient.

I am glad that Dr. Frank called attention to the fact that he drained the two pus cavities, because that gives me an opportunity of suggesting, as I have done on several previous occasions, especially in a paper read before the American Gynecological Society at its last meeting, that we may anticipate and prevent the formation of pus in the broad ligaments, or even in the para-pelvic peritoneum at the beginning of septic infection by cutting the vaginal wall behind the neck of the uterus and with the finger separating the broad ligaments, tearing up the infected

spaces, irrigating with bichloride solution, tamponing and draining with iodoform gauze. Or if infection has gone through the uterus and upon its outer surface, or gone out through the tubes into the peritoneum of the pelvis, we may abort this by going through into Douglas' cul de sac and washing out the pelvis, then introducing iodoform gauze drains. I believe that in many of these cases, which usually suppurate, either in the broad ligaments or in the pelvic cavity, finally ending in general sepsis, may be relieved by early drainage, and the uterus and even the tubes may be preserved.

#### DISEASES OF THE UPPER AIR-PASSAGES—THERAPEUTIC CONSIDERATIONS.

By JOHN E. BACON, M. D.

##### OTITIS MEDIA, COMPLICATING PNEUMONIA.

Dr. F. P. Ball (*Med. News*, Sept. 21, 1895), calls attention to the above very important topic. He quotes an extract from the *Hospitals Tidende* in the *Therapeutic Gazette*, setting forth the results of sixty-one autopsies on children under two years of age. In forty-six cases (seventy-five per cent.), suppurative disease of the middle ear was discovered. Nearly all those who had suffered from bronchopneumonia had ear disease, and in thirty-three cases the pneumococcus was found. In many cases the diagnosis of meningitis had been made, which was only disproved by the post-mortem examination, when middle ear disease was found to be the lesion.

The author also reports three very interesting and instructive cases from his own practice, in all of which suppurative otitis media occurred, complicating catarrhal pneumonia. In these cases the classical signs and symptoms of meningitis were marked, and the true diagnosis was only made after the appearance of the discharge from the ears.

The author very properly asserts that many cases of otitis media in young children are never recognized, and that death often results from this cause. He quotes

S. MacCuen Smith to the effect that he has seen six deaths from this cause in the last three years, and that in none was the nature of the disease recognized until a few hours before death. "Four of the patients were thought to be suffering from *brain fever*, and two from meningitis."

The diagnosis is certainly very difficult in many instances, and the only means of arriving at a positive conclusion may rest in a thorough examination of the tympanic membranes by means of reflected light and suitable speculæ, and this point should never be neglected in any case in which the so-called brain symptoms appear. This point has long been insisted upon by aurists, with the result that, as a class, they have been accused of too much self-interest, and of trying to work into the province of the general practitioner too much.

The main difficulty, strangely enough, to be met with in observing this very important rule is, that quite a large percentage of general practitioners would not know a normal from an abnormal eardrum, even if the light should be properly directed into the canal so as to get a good view of it, let alone determine whether the membrane bulged or not, or otherwise showed signs of fluid in the tympanum; and this fact should serve to impress upon us that the four-year courses in our medical schools have been delayed already too long, and that a systematic training in methods of examination of all the cavities of the body and in the use of instruments of precision, are *necessary* to those who are to keep up with the procession of medical progress.

Having determined, however, by examination and signs that the tympanum is the seat of a collection of pus or inflammatory exudate, which by pressure upon the blood-vessels and nerves of the part, as well as upon the round and oval windows, is the cause of the headache, vomiting, delirium, restlessness, fever, deafness, and coma, the only rational procedure is to afford an exit to the collection

by a free incision in the tympanic membrane at once, lest the pus find its way into the mastoid cells or into the interior of the cranium, and set up a *true* meningitis. The operation is not difficult if the operator has a good light and can recognize the landmarks, but of course it is not to be attempted by one who has never had the advantage of being trained in the use of the instruments belonging to this region.

The relief afforded will be immediate, and under intelligent after-treatment, permanent.

Hot douches to the ear, dropping medicines, as cocaine, etc., into the canal, are measures which are but palliative at best, and in many cases actually aggravate the trouble by grafting an external to an already existing internal inflammation. Dry heat by means of the water-bag or Japanese pocket-stove, may be employed to relieve pain, and in skillful hands the inflation of the middle ear by means of the Politzer air-bag may sometimes evacuate the collection; but both for sake of relieving the immediate urgent symptoms, and for the future condition of the ear itself, incision is the most promising measure to adopt.

#### HABITUAL EPISTAXIS.

The point of origin of habitual nose-bleed is usually found on the anterior, inferior part of the septum nasi, and is usually due to an abrasion or an ulcer.

One of the most frequent causes of simple ulcer of the septum is a faulty method of blowing the nose, which act is usually accomplished in the following manner: The nose is grasped, with or without handkerchief, between the thumb and forefinger and tightly compressed; a violent expiratory effort is then made, and the grasp is suddenly relaxed. Now, the nose is again grasped and roughly wiped from side to side, the septum being forcibly bent in alternate directions during the process. The evils that follow this method are forcible inflation of the eustachian tube and tympanum, in many instances

carrying septic matters into the latter cavity, with resultant acute suppurative otitis media; and the cracking or abrading of the mucous membrane on each side of the septum at its anterior, inferior part. The constant respiration of this faulty act will serve to keep the abrasion fresh, and a superficial ulcer is the result. This rapidly becomes covered with crust which is constantly picked away with the fingers and as constantly re-forms.

The treatment of an attack of bleeding from one of these causes consists in spraying with a 10 per cent. solution of antipyrin, or touching the bleeding point with the galvano-cautery point; or in extreme cases packing the chamber with sterile cotton, either plain or soaked in the solution of antipyrin.

The subsequent treatment of the condition should consist of warning the patient to blow his nose gently and to wipe it straight down, omitting the sidewise twist, and to keep his fingers and match sticks out of the nose; then the application of pure tincture iodine to the abrasion three times a week, or a 5 per cent. solution of silver nitrate, if the healing process appears to be slow.

Deviations of the septum, spurs, and irritating hypertrophies must be treated by surgical measures, and should be attended to in each case seeking advice, for, until they are corrected, the patient will always have more or less trouble, local or reflex, from them.

#### HEADACHE FROM NASAL IRRITATION.

Headache, especially migraine, very often results from an abnormal nose. Hypertrophy of one or both middle turbinals to the point of actual contact with, or pressure upon, the septum, is perhaps the most frequent cause, though spurs from the septum so large as to make considerable pressure upon the soft parts, and growths, as polypi, are often the cause of persistent headache.

Headache from this cause will be aggravated by an acute coryza, and is most

frequently felt in the frontal region and the eyes, sometimes it will be occipital, especially if any ocular trouble be associated, and sometime it is diffused.

The treatment consists in reduction of irritating hypertrophies by snare or cautery, and removal of any spur causing pressure, or the correction of a septal deviation if it be so marked as to give rise to pressure or a considerable degree of stenosis. For the reduction of hypertrophies of the middle turbinal the cautery is usually employed, and of all topical agents for this purpose, chromic acid is the best; but it must be used with certain precautions in order to avoid a too extensive destruction of tissue, and to prevent systemic intoxication. The following detailed directions may be of use to some who are unfamiliar with this work. Heat a metal applicator nearly to redness and apply it to a single dry crystal of the acid, which will adhere to the applicator, and by more gentle heat will be fused into a bead at its end; now allow to cool, and if the bead is hard and of a deep red color it is fit to use; the acid must not be burned. Having selected a spot to cauterize where a reduction is needed, make an application of a 5 per cent. solution of cocaine, wipe it dry with absorbent cotton, and make a rapid application of the bead; enough will dissolve during a rapid passing of the bead over the surface to do the work. This must be immediately followed by an alkaline spray to neutralize the remaining acid and to limit its destructive effect. A slight quantity of aristol blown over the surface will tend to prevent infection, and the case must be watched carefully for a few days. The application must not be repeated for at least ten days, and should *never* be done without good illumination of the cavity.

The applications should be made at proper intervals until the hypertrophy is reduced, until it is in no place in contact with the septum, and in all cases of reflex headache from this source a lasting cure will be effected.



## ACUTE LACUNAR TONSILLITIS.

Dr. John Sendziak, of Warsaw, Poland (*Journal of Laryn., Rhin., and Otology*, April and May, 1895), contributes a very able article on the above subject, being a review of recent writings and the results of the study of a series of cases by himself.

The author protests upon anatomical grounds against the name "follicular tonsillitis" as applied to this disease and accepts, in common with the majority of recent writers, the appellation as above written.

The disease is regarded as distinctly infectious, and due to bacterial activity, but quite distinct in its etiology from diphtheria, as most bacteriologists now agree. The organism occurring most frequently in the series of cases studied by the author, was the pyogenes staphylococcus, with the streptococcus very common, and sometimes the pseudo-diphtheritic bacillus appeared to be responsible for the whole trouble. In no case out of the series of one hundred and thirty-seven was the true Klebs-Löffler bacillus demonstrated.

In a number of instances the so-called "house epidemics" were seen, the disease attacking one member of a family and in turn affecting all others living in the same house. This was not observed to be due to local unsanitary conditions.

The pathological anatomy of the disease, as determined by a number of Polish observers, is infiltration of the adenoid tissue of the gland and of the epithelium of the crypts, which are filled with thickened secretion composed of epithelium, lymphoid corpuscles held in a fine network of fibrin, and great numbers of bacteria, especially small diplococci and the pyogenes staphylococci and streptococci. Small necrotic points are found, but only in very superficial layers of tissue in and around the crypts. The pathological distinction between it and diphtheria rests upon the fact that the fibrin containing the bacteria and lymphoid corpuscles is found free in the crypts and on the sur-

face and not in the substance of the contiguous tonsil tissue; and upon the absence of the Klebs-Löffler bacillus.

*Symptoms:* The disease always commences acutely, and generally, with a chill; then follows fever, general weakness, headache, and dysphagia. Pain and tenderness at the condyles of the jaws and in the throat, sometimes radiating to the ears, all aggravated by swallowing. The submaxillary and sublingual glands are usually slightly enlarged and tender. Examination reveals one or both tonsils swollen and very much reddened; small white or yellow spots will be seen marking the orifices of the crypts filled with epithelial debris and altered secretion. The uvula and palatine half arches are usually reddened and sometimes œdematous.

The disease lasts about five days, and the prognosis is absolutely favorable.

The disease cannot be confounded with any other except diphtheria, and in all cases where it is possible a bacteriological examination should be insisted upon. Where this cannot be had the case should be isolated until convalescence.

The author treats the disease by giving first a purgative dose of castor oil, following with antipyrin, quinine, or salol internally for the fever, pain, and general prostration, together with plain nourishing diet and light wines. Locally as a gargle he employs a five per cent. solution of salol in alcohol; of this a teaspoonful is added to a teacup of lukewarm water and is used every two hours. Very favorable results have followed this line of therapy.

The writer treats this disease differently, and with such marked success that it may be interesting to detail the process, as follows: *Locally*, a warm alkaline spray to cleanse the parts, followed immediately by the application of full (commercial) strength hydrogen dioxide solution by means of an applicator wrapped with absorbent cotton and bent at right angles near its tip; this is passed into each crypt affected repeatedly until no further reac-

tion is observed. A spray of 10 per cent. antipyrin solution is then used, and aristol dusted over the inflamed parts.

*Constitutionally*, one tablet of nuclein solution ( $\frac{1}{3}$  minim) is given on the tongue every two hours for twelve to twenty doses, and then every three hours for three days.

Convalescence in three days is the rule under this treatment, and very rarely does the local treatment have to be carried out more than once, or at most twice.

#### RULES FOR THE PREVENTION OF TUBERCULOSIS.

Comprehensive and efficient means should be adopted for the prevention of tuberculosis. I will recommend the following:

1. Educate the public to a proper understanding of the communicable character of tuberculosis. Teach the people how they can avoid contracting the disease themselves and how they can prevent transmitting it to others.

2. The promiscuous expectoration of consumptives should be prohibited. The sputum should be received into a 10 per cent. solution of carbolic acid, or an acid solution of bichloride of mercury, 1 to 1000. If at any time this be impracticable, the sputum may be collected on paper napkins or handkerchiefs, which must be burned before they become dry. Under no circumstances should a phthisical patient be allowed to spit on the floor or on the streets.

3. Let every physician employ systematic bacteriologic examination for the early diagnosis of the disease, and let us inaugurate compulsory registration of all cases of tuberculosis.

4. It should be made compulsory to have careful and thorough disinfection of all houses, apartments, penal and reformatory institutions, carriages, street and railway cars, steamships, theatres, churches, and the like, which have been exposed to infection from phthisical patients.

For disinfection of rooms I would recommend sulphur acid gas, obtained by burning one ounce of sulphur to every ten cubic feet of space, chlorin gas to saturation. Shut all the doors, windows and crevices for four hours, then let in the fresh air and scrub the walls, floor and articles of furniture with the acid bichloride solution (bichloride of mercury, 2 ounces; tartaric acid, 2 drachms, to the gallon of water; or 2 ounces each of  $\text{HgCl}_2$  and permanganate of potassium to the gallon. Remove all wall paper if it cannot be washed or painted. Thoroughly boil or steam all bedding, carpets, curtains, and the like, for at least one hour.

5. Under no circumstances should the stools of tuberculous patients be emptied into sewers until they have been thoroughly disinfected. The intestinal glands are frequently implicated in tuberculosis, and the dejecta often teem with bacilli; therefore, all discharges should be received into a solution of eight ounces of carbolic acid to the gallon, or four ounces of chloride of lime to the gallon of water.

6. Enact regulations prohibiting tuberculous individuals from following vocations that may expose others to the danger of infection. The sputum may dry on their beards or clothing and then be disseminated. For the same reason, consumptives should avoid kissing, or even handshaking, to protect those near and dear to them. All dishes and drinking cups should be used by the patient exclusively, and should never be mingled with those in use by other members of the family. The promiscuous use of public drinking cups in schools, cars, streets and churches can not be too severely condemned, as contagion is possible from this practice.

7. Tuberculous mothers should not nurse their children. In fact, consumptive people should not be permitted to marry.

8. There should be established careful scientific examination, under city and State control, of all milk, meat or other articles of food sold. All animals suffering from tuberculosis, anthrax, septicemia, glanders, cattle-plague, sheep-pox, swine-plague, foot and mouth disease, acute pneumonia, actinomycosis, dropsy and rabies should be killed and at once cremated.

9. Consumptives should also be isolated and there should be established under State control, public hospitals and sanatoria for the segregation and isolation of the consumptive poor, where they could live under the best hygienic laws, receive proper food and judicious medicament.

10. All persons having died of tuberculosis should be at once wrapped in sheets wrung out of bichloride solution, and cremated as soon as practicable. If this be not possible, then they should be buried with quicklime, as the bacilli do not die with their host, but have been found in cemeteries from two to twenty-five years after inhumation.

Is it not our duty to prevent the ravages of tuberculosis and thereby save over 150,000 lives annually in the United States? Are we not bound by our obligations to ameliorate suffering and prevent loss of life, and this can be accomplished by isolation, proper hygiene and disinfection. That tuberculosis is contagious—even from man to wife—no one but the ancient, non-progressive physician will deny.—Dr. Winslow Anderson, in the *Journal of the American Medical Association*.

The suggestion that the bodies of persons dead of tuberculosis should be cremated, is a good one, and this should be made compulsory by any law dealing with this question; but some provision should also be made looking to lightening the expense of cremation when ordered in the cases of persons not financially able to afford it.

In connection with the proposal to compel the registration of tuberculous patients (this is already a local law in the city of Buffalo, N. Y.), and the suggestion that they should not be allowed to marry, it occurs to the writer that this step, while unquestionably desirable as one that would aid in checking the spread of the disease, is manifestly unfair. Why should the poor victim of this disease, which he may have developed through an inherited predisposition, or have contracted while caring for a wife, or a parent, or a brother through a long fatal illness, and which is stamped upon his face and form so plainly that the veriest novice has but to look to know and pity, be registered and isolated and cut off from every thing that may go to make his remaining hours bearable?

The *rotten* syphilitic is allowed the freedom of the land; his disease is usually hidden; his physician helps him to hide it; he poisons our public eating and drinking places; even the communion cup is not safe from him; oftentimes worse than death lurks in his kiss; and too often his physician will stand mutely by and see him lead a pure woman to the altar, and yet not feel responsible for the horrible consequences that too often result to the unsuspecting wife and the innocent children born to them. We isolate the leper, we quarantine yellow fever and smallpox, and yet we make no systematized effort to limit the spread of this vicious disease the results of which entail more awful physical and mental suffering than all three combined, the worst of which falls upon innocent victims. Why is it? Is it because the registration of all syphil-

itics would expose as many men and women of high degree as of the common herd? For the honor of our profession let us hope that this is not the main cause of the evident reluctance to push this important question; and yet it is safe to say that not for love of justice, for love of the innocent, nor for love of *money* could a law requiring it be placed on the statute books of any state in this union.

All honor to brave old Dr. Atkinson, who not only refused the communion cup from the hand of a patient whose mouth was filled with loathsome, poisonous sores, but also withdrew from the service and told the reason why. More men of that stamp are wanted in our profession.

If the registration of all tuberculous persons is desirable, and it is! then the registration of all syphilitics is desirable too, all the more if it would take one in every twenty or less, as eminent syphilographers say it would; and in the name of simple justice it should be incorporated in the same law.

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### PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M. D.

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### RATIONALE OF THE PROCESS OF DELIMITING IN ERYSIPELAS.

Adami (*Montreal Medical Journal*) says, there are in the reddened erysipelatous area numerous leucocytes, together with destruction of the cocci; in the zone outside this, one finds cocci without an excess of leucocytes. The application of the caustic in this outer zone sets up a simple inflammation with migration of leucocytes and presumable destruction of the cocci. I would suggest that, bearing in mind that chain cocci may be found more than an inch beyond the reddened margin, the line of application should be painted at least one inch and a half out-

side that margin, thus enclosing the living, active cocci between two barriers of typical inflammation. (*Texas Medical Journal*, Sept., 1895.)

The use of lunar caustic in ringing in erysipelas, places it in line with cold water applications and massage. There is presented another instance of the fact that the occurrence of leucocytosis is not a mere coincidence, but a well-laid design, an automatic one, as it were, to counteract morbid influences.

Confirming this and also the rationale of the action of antitoxin is the following, on

#### PHAGOCYTOSIS.

Ganarelli (*Gaillard's Medical Journal*, August, 1895) gives an account of the means by which the organism is defended against the microbes. He studied the varied kinds and selects the life history of vaccinia as revealing the details of general immunity best. At the outset, he shows that this immunity cannot be due to any bactericidal property, to any attenuating power, nor yet to any antitoxic power possessed by the body fluids of the vaccinated animal, for he finds that the serum of vaccinated animals possesses no bactericidal power as maintained by Behring and Nissen; and the microbes grown in such serum increase rather than diminish in virulence. Further, the serum of vaccinated animals possesses no antitoxic properties; microbes developing in such serum actually produce more active toxins than when they are grown in ordinary nutrient media. Having eliminated these three possible causes of vaccinal immunity, he proceeds to show that the preventive and therapeutic properties of this serum depend upon the power possessed by it of causing active phagocytosis. The microbes are engulfed by phagocytes, and enclosed in these, they retain their vitality for a considerable time. He believes that, although remaining alive at the seat of inoculation, these microbes produce no toxins after being enclosed in the phagocytes, for the blood-serum of

such animals is not capable of destroying the toxins if they were elaborated. He finds that marked leucocytosis occurs in vaccinated animals, and in those treated by therapeutic serum; but the leucocytes undergo a most remarkable diminution in other cases. This, he connects with the chemiotactic relations between the serum and the phagocytes. Preventive serum does not influence the diseased organism to any action on the bacteria, but by stimulating the proper cells to activity, thereby causing a concourse of phagocytes at the seat of inoculation.

#### HEMORRHAGIC MALARIAL FEVER—USE OF QUININE.

As if in confirmation of what was said on this subject in the September THERAPIST, Jones (*Texas Medical Journal*, September, 1895) observes, quinine has been regarded as a specific, but a glance at the accompanying table shows that it is equally powerless to arrest or prevent the disease. In fact, owing to the hyperemia and inflammation of the kidneys, it is clearly contra-indicated. It is also contra-indicated on account of its well-known effect of lessening the oxygen-carrying power of the red blood corpuscles. As these are the point of attack of the disease, and are so deficient in number, nothing should be done to further impair their deficiency. Indeed, Hare, Kitasato, Martin, of Mississippi, and others report cases where quinine has certainly caused the disease, or at least precipitated it, and produced a relapse in cases that were convalescent. Fortunately for the patients treated with this drug, their stomachs are usually so rebellious that it is usually impossible to cinchonize them.

The main treatment was by purgatives, and where these were given the first day, not a death resulted. Small doses of English calomel were given every hour; aided by copious enemata of normal saline solution every two or three hours. The object of the latter is obvious. It aids the mercurial, replaces the plasma (which is

constantly being lost), thus stimulating the heart, and encourages free diaphoresis, materially relieving the overworked kidneys. Strychnine and other supportive remedies were employed. This is "rational reason," if we may so term it to distinguish it from "rational empiricism."

#### VASCULAR SPASM WITH CARDIAC DILATATION— MORPHINE *versus* STRYCHNINE.

J. Jacob (*Medicine*) says, a sudden spasm of the peripheral vessels occurs with a chill and sometimes pain, precordial distress, dyspnea, cold skin, and very slow or rapid pulse. At the same time, there is acute dilatation of the heart, the area of dulness is increased, and the apex is displaced. This continues for several weeks, or indefinitely if the attacks are recurrent. The best treatment is hypodermatic injections of full doses of morphine. (*Maryland Medical Journal*, Aug. 3, 1895).

It is very questionable that this is the best mode of treatment. A case of the kind exists in the writer's own family, and from the feeling of malaise, constipation, anorexia, and other symptoms following the use of morphine, he was led to use other treatment. It was found that hypodermatic injections of strychnine  $\frac{1}{100}$  gr., and atropine  $\frac{1}{100}$  gr. produced the good effects of morphine, without any of its bad ones, and in as short a period of time. The patient, in fact, thought that morphine had been injected, just as it had been done by his attending physician. The only difference was in the absence of the sequelæ. The treatment has been continued by mouth with results far beyond expectation. It is understood that "one swallow does not make a summer," but equally good results have been obtained in like cases. And it is easily explained when the modes of action of strychnine and atropine are comprehended.

For the prevention of cardiac failure in chloroform narcosis, this method of treatment is an almost unqualified success, and it has the merit of being a true phy-

siological procedure in contra-indication to the administration of morphine for the same purpose for which we would administer paregoric to a "puling infant,"—merely to quiet.

#### BLOOD SERUM THERAPY—ANTITOXIN—WHAT Is It?

Dr. G. Fütterer, of Chicago, gives in *Medicine* a history of blood serum development and, among others, lays down the following conclusions (*Maryland Medical Journal*, Aug. 24, 1895):

The antitoxins, which cause immunity, are products of toxins of bacteria, formed in the blood of the animal body. We do not know the process of the formation of these antitoxins, and Buchner is of the opinion that we do not know their chemical nature. While they may stand in a certain relation to albuminous bodies of the blood, this relation is not close, as these albuminous bodies may be precipitated, thus proving that they themselves contain only a very small amount of antitoxic substances, certainly much less than the previous solution as a whole. The opinion of Buchner, who believes in the existence of an albumen in a live state, must also be wrong, as the serum containing the antitoxin can be mixed with carbolic acid or other solutions which destroy animal life, and be kept mixed with them for any length of time without losing its antitoxic properties.

Metschnikoff's phagocyte theory we consider also unsatisfactory, for reasons mentioned above, and because if we expose a mixture of serum and phagocytes to the freezing process, and thaw again, our mixture will not have a stronger antitoxic action than before.

The birthplace of the antitoxins and their mode of forming are, so far, unknown; but I believe, with Roux, that they are produced by cells, but certainly not by the white blood corpuscles.

In these conclusions there are certain statements that are sadly contradictory; others that are in want of rectification.

In the first place, it is stated that the antitoxins are products of toxins of bacteria formed in the blood; in the second place, that they are produced by cells, but not the colorless corpuscles. Now, if produced in the blood, what other cells can stand as creative? It has been claimed that the antitoxin is a direct product of the bacteria; but we know the fate of tuberculin.

So far as the disposal of the phagocytic theory is concerned, Fütterer has certainly not refuted it in his thawing process, for he cannot claim that freezing and thawing antitoxin will make it stronger than before.

Although, in this article, phagocytosis has already been referred to, let us turn to another statement found also in the *Maryland Medical Journal* (Aug. 24, 1895). In this we find Fütterer's "mysteries" solved.

Dickeson observes that the vigor of the blood in building up animal tissues depends upon the protoplasm furnished by the chyloferous and lymphatic systems, and that what are known as leucocytes, play a very important part in this direction in maintaining a healthy status of the body. If, therefore, the cystoblastic power inherent in the blood be interfered with by the growth of parasites, the result is a derangement of the circulation, and disease follows, the violence of the disorder depending upon the vitality of the patient to resist the morbid action of such parasites. The production of leucocytes, therefore, is dependent on this effort to resist disease, and is not the cause of it, as was formerly supposed. By some it is believed that they are ultimately converted into the red discs of the healthy blood, besides being tissue builders. The direct introduction of germ serum into the circulation is said to have the same effect of increasing the leucocytes as when produced by the thoracic fluids (protoplasm or nuclein). By their increase they envelop the toxic parasite, and either prevent its growth or destroy it altogether.

It is now claimed that leucocytes may be readily increased in the blood of en-

feebled individuals, through the direct digestive channel, by administering peptonized phosphatic tissue substances of a complex chemical formula; and such substances have been distributed throughout the country as prophylactics for malignant diseases and anemia.

The direct introduction of serum into the circulation is held to have the same effect of increasing the leucocytes, which by this increase envelop the toxic parasite, and either prevent its growth or destroy it altogether. This is proved by the ameboid power inherent in all white corpuscles of the blood to incorporate or lodge particles of matter in their own substance; and, as the leucocyte is simply an animal cell, by osmosis, they readily penetrate the vascular spaces and are converted into tissue. Under a depressed physical condition, the lodgment of microbes is more certain than where the vital forces are in full vigor, and it is to this end that leucocytosis is desired in the weak individual, as it is known that resistance to disease is due to such presence.

It is to the last paragraph that attention is particularly directed, for it embodies in small space, the vital points of the phagocytic theory. The chemical nature of the prophylactic and curative agent is a phosphorized proteid, nuclein, a product of anabolism in the white corpuscles.

If the toxins, as claimed by Fütterer, do produce antitoxin, the method is indirect and results from their stimulation of the colorless corpuscles. In other words, antitoxin, or rather its active principle without the noxious serum, is nuclein.

#### EFFECTS OF CONSTIPATION.—THE ADVANTAGES OF ENEMATA IN OBSTETRICS.

Irwin (*N. C. Medical Journal*, August 20, 1895) remarks: "Perhaps you all have noticed the tardiness with which even slight wounds heal, if the excretory processes are not going on properly. The circulation of azotized matter, nitrogenous waste, excretory substances, which hepatic and intestinal activity should eli-

minate, makes the earlier steps of digestion impossible. Improvement after purgatives, illustrates the dependence of all the functional activities of the body, on the prompt removal of all cumulated excretory matter. Indigestion means.... also the perversions of absorption, assimilation and excretion with the morbid states they create, and are causes of not only functional disorders, but secondary pathological changes. In labor, as there is congestion of all parts concerned, the ptomaines render these more liable to attacks. Impoverished blood, or blood surcharged with abnormal or foreign elements, furnishes a favorable nidus or culture ground for the development of disease germs, as the bacterium coli commune, setting up genuine or local peritonitis. Many ailments of childhood are due solely to imperfect action of the bowels; in adults, we often see a rise of temperature with other symptoms.

Irwin advises for the parturient, the use of enemata, and he sums up their benefits as follows: 1. Removal of a mechanical obstacle to the progress of labor; 2. Prevention of absorption of excretory matters in the blood; 3. Prevention of local contamination by fecal matter and germs, as in lacerations, the movement being produced before labor; 4. Anticipation of the necessity for transfusion of salines in case of hemorrhage; 5. They may be used as a co-efficient in increasing uterine action and accelerating delivery. This may be brought about by giving an injection in the second stage, thus calling into play the abdominal muscles and diaphragm. This action is indirect, but there is a direct effect on the uterus; the contractions of which are increased and made more efficient. It is due to a reflex irritation of the terminal nerves of the bowel, which irritation is conveyed to the defecation centre in the cord. As the parturition centre and that of defecation are situated in the same part of the cord and in close proximity, and during labor the reflex activity of the spinal cord undergoes aug-

mentation, and the irritability of the uterus is increased, it is not unreasonable to suppose that rectal injections of a saline solution may stimulate uterine action.

#### EMPLOYMENT OF LARGE DOSES OF MEDICAMENTS.

That cellular physiology is believed in by a number of practitioners, goes without saying: That its principles are founded on a substantial basis is in evidence; and that as the days go by, more and more physicians employ it in their daily professional work is proven. And it is not strange that this should be, because it appeals so strongly to reason and because results fully and rapidly bear out that reasoning.

Dr. Boothe, in the discussion following a paper on Clean Midwifery (*North Carolina Medical Monthly*, August 20, 1895), said, the giving of strychnine in these heroic doses (gr.  $\frac{1}{10}$  to  $\frac{1}{8}$ ), is going to get somebody into a scrape. We must not forget that we may meet a patient who cannot stand such large doses. He related the following case: He had been called to see a bad case of typhoid fever. The patient was nearly dead, having had hemorrhage. The physician who had called him in consultation, wanted to give  $\frac{1}{10}$  gr. of strychnine under the skin, and did so. In less than a half-hour, the patient was seized by a convulsion and died.

Dr. Sykes said in a case which he attended, he gave  $\frac{1}{10}$  of a grain and convulsions ensued, continuing from 10 A.M., till 12 P.M. It was his candid opinion that the young men of the profession had better be careful about giving  $\frac{1}{10}$  of a grain of strychnine. He had seen a case in which two grains of morphine were given in doses of  $\frac{1}{4}$  gr. at a time, repeated until relief came, which was forever, for he went to sleep and never waked again. He appealed to the young men of the profession to give these drugs in small quantities.

Dr. Haigh wished to render his personal thanks to Dr. Sykes for his answer, ad-

vising cautiousness in the use of drugs. Had he been a jury, and the man brought before him, he would have found him guilty of murder. There had been no better suggestion made at the meeting, than that they should be careful in giving these potent drugs.

#### CAUSATION OF TUBERCULOSIS OF THE LUNGS, AND TREATMENT.

R. L. Howard (*Va. Med. Monthly*, September, 1895) advances the theory, that "veno-hepatic congestion" plays an important part in the causation of phthisis. He says this will favor the development of any local congestion that may be pending from other causes, and thus favor effusion or deposit. The healthy liver rids the blood of toxic elements and other impurities; and out of these chafing and inflammatory impurities, manufactures a due amount of healthful bile (the most essential of all the secretions in the body)," one of whose most important functions is "that of furnishing animal heat to the surface of the body," thus resisting the effects of damp, cold air, so dangerous to phthisical persons; for it is well-known that any person will take cold quicker when the liver is torpid than when active and furnishing the due amount of bile, the great antiseptic, too, of the body." In the condition of congestion, the stomach, also, he says, is affected; the food is improperly digested, and thus fails to sustain vital force. The kidneys share in the stasis, excreting less urine, "throwing an overshare of duty on the porous system and predisposing to night-sweats." Cough is produced by a sensory-reflex action as is also increased heart's action, which not only intensifies the hectic and night-sweat, but increases the congestion and inflammation in the lungs, and if not checked, soon results in breaking down of tissue.

"The reason why the disease, as a rule, develops in the apex or upper lobes, is because the residual air in these cells, which are above a level of the outlets to the air-tubes, that supply these parts, does

not escape from these as readily as that from the cells below; hence there is more stale air in the upper, than in the lower cells of the lungs." Basing his indications for treatment on these lines, Howard gives a moderately purgative dose (*sic*) of some simple purgative—say ipecac and aloes, from 3 to 5 grs. of each, and if this fail to afford full relief in two or three days, he should repeat the course, using in the place of aloes, 5 to 8 grains of pure calomel and one grain of extract of hyoscyamus. "This course will not only act well as a preventive, but will do more to arrest the progress of this formidable disease than any other I ever tried in an experience of about thirty years in civil and military practice." (!)

With this powerful light thrown upon that dread disease, it is surely wonderful, criminal, that so many of us have allowed the stricken patients to pass from us; especially, as the means of prevention was so ready, so easily applicable. The poor liver has another burden thrown upon it, and no wonder it becomes "torpid." While it is true that activity of that organ conduces to a better state of health, yet it has been satisfactorily proved that the bile is a very weak antiseptic, some going so far as to deny altogether that it has antiseptic properties.

Howard recognizes, or rather quotes, authors who state that one of the chief functions of the liver is its cellular action on toxins, but he confounds it with the action of the bile which, in this case, would be purely excretory. Of course, a congestion of the organ would interfere with the cellular action. So far as furnishing animal heat to the body is concerned, oxidation of the re-absorbed bile can furnish but a small amount of the caloric generated. We may accept a number of his explanations as true in part; but even these we have to take *cum grano salis*. He goes too far.

The inflammation of the lungs, or predisposition to it, must certainly exist first. Then the "torpid" liver can exaggerate



the symptoms; but it is preposterous to suppose that the treatment outlined can effect a cure, or even prevent the oncoming disease. It requires far more. The claim as to residual air can be disposed of merely by mentioning the *condition of equal tensions*: If a liquid containing a gas in solution, be exposed to an atmosphere containing none of the gas, the gas will be given up to the atmosphere until the amount in the liquid and in the atmosphere becomes equal.

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**FERRATIN: IRON TONIC AND FOOD.**—In *Sajous' Annual* (1895) of the Universal Medical Sciences, Vol. V, A, pages 90–91, Dr. Dujardin-Beaumetz summarized the record of Ferratin, the new iron food and tonic reconstructive, as follows: Ferratin is the name given by Schmiedeberg \* †, of Strasburg, to that combination of iron which is found in the normal tissues and which is stored up in the latter as a reserve from which it may be drawn for the formation of blood. He has succeeded in producing this substance, by artificial means, in the form of a fine powder of red-brown color, like oxide of iron. \* \* \* Ferratin, in contradistinction to those compounds of iron hitherto in use, is readily assimilated and does not produce any unpleasant disturbances in either the gastric or enteric functions, even when used for a lengthy period; indeed, in some cases its exhibition seems to produce improvement in the appetite and regularity in defecation. As a portion of the substance is decomposed by the acid gastric juice and also by sulphuretted hydrogen a sufficient quantity of ferratin must be ingested to leave an overplus in the bowels so that the organism may pick up as much as it requires. There is no necessity whatever to anticipate overloading the organism with the iron, as absorption and excretion appear to be mutu-

ally controlling. Excretion does not take place through the kidneys. The daily dose for adults is 1 to 1.5 grammes (15½ to 23¼ grains). Acids should be avoided, but no other restrictions are necessary. Schmiedeberg points out that ferratin is first and foremost a food, and its use is indicated in all cases in which nutrition and blood-formation are unsatisfactory.

Banholzer ‡ §, of Eichhorst's clinic, relates his clinical investigations with this preparation. In anæmia following acute disease the haemoglobin was quickly increased (over 5 per cent. in eight days), as also the number of red cells. In chlorosis the same results were visible even in a more marked degree. The general condition was improved and the increase in weight in most cases considerable. The good effects on the appetite were obvious. When compared with Bland's pills, which also gave good results, ferratin was found to lead to a greater increase in the haemoglobin. John Harold || found that in three cases of severe anæmia the preparation appeared to exert a remarkable haematinic effect; it did not interfere with digestion or produce any constitutional disturbance. In one of the patients, iron, in the form of a scale-preparation, or as reduced iron, had been previously given for twelve months without apparent benefit.

Germain Sée \*\* has also tested ferratin, and finds that it can be employed in men apparently healthy or in children and chlorotic subjects, the curative action not being interfered with by injurious secondary effects, as is often the case when ordinary ferruginous preparations are used. The dose used by him is from 0.05 to 1.5 grammes (7-8 to 23¼ grains) two or three times a day. Each dose contains about 6 per cent. of iron. Marfori †† states that care should be taken not to associate it too closely with acid materials. Hugo Wiener ‡‡ reports 20 cases in which it produced favorable results.

† *Centralblatt für Klin. Medizin*, Jan. 27, '94.

§ *British Medical Journal*, Feb. 17, '94.

|| *Practitioner*, London, Aug. '94.

\*\* *La Presse Medicale*, Paris, Aug. 25, '94.

†† *Annali de Chimica di farmacologia*, Feb. 1, '94.

‡‡ *Prager Medizin. Wochenschrift*, April 18, '94.

\* *Archiv für experimentelle Pathologie und Pharmacie*, Leipzig, 23, Nos. 2 and 3.

† *Provincial Medical Journal*, April 2, '94.

# THE AMERICAN THERAPIST.

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CLINICAL APPLICATIONS OF DRUGS.

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## Editorial.

### TUBERCULAR PERITONITIS— METHOD OF CURE AFTER OPERATION.

SHERRILL, of Louisville, in the *AMERICAN THERAPIST*, May, 1895, reports a case of tubercular peritonitis. He says, from conditions present he diagnosed the disease and advised operation, not offering, however, hope of a permanent relief. The abdomen was filled with serous fluid. The intestines were studded throughout with minute tubercles, grayish in appearance and varying in size from a very small millet seed, to half as large as a grain of wheat. On the parietal peritoneum, there were several larger masses of tubercle. The fluid was evacuated, and the cavity thoroughly flushed with a normal saline solution. Six months after the operation, the patient was seen, and there had been no re-accumulation; his temperature was normal, and he was improving in health and strength.

A number of theories, says SHERRILL, have been advanced to account for the benefit obtained by this operation. In his opinion, the most plausible is that the relief is due to removal of the fluid, which is a very favorable culture medium for the

growth of the bacilli at the temperature found within the abdominal cavity.

Prof. SHATTUCK, of Harvard, in the *International Medical Magazine*, October, 1895, reporting some cases of tubercular peritonitis, says, tuberculous peritonitis may get well spontaneously under simple medical treatment. One patient had it for upward of a year before he was tapped. The fluid had become encapsulated and shut off one portion of the abdomen; this fluid was then withdrawn, and it has never returned. Surgery should be resorted to in those cases of tuberculous peritonitis in which no improvement takes place after a fair trial of other means, and in which the tuberculosis is not so widespread as to render it practically useless to interfere at all.

A second patient was tapped at McBurney's point, there being evidence that the fluid was no longer free in the peritonium, but was encapsulated in the right side. Three quarts and a half of highly colored, slightly bloody fluid were removed. This was November 20th, 1890. The patient reported October 14th, 1891, and again October 4th, 1892, feeling well. He reported January, 1895, for a cough, but the belly looked perfectly natural. Says SHATTUCK, there has been a good deal of speculation and discussion as to how surgery is curative. It was suggested that it was either by the drawing off of fluid, or by the admission of air into the peritoneal cavity, or by both, that the injurious influence on the bacilli was exerted. As far as drainage goes, this might explain the cases where recovery takes place after tapping, but we see cases recover without interference of any kind. The admission of air into the peritoneal cavity: it can not be that, because that supposition does not explain the cases that get well spontaneously, nor the cases that get well after tapping alone. Of course, the peritoneal cavity may get into such a state from chronic inflammation that it loses its absorptive power.

SHATTUCK evidently has no faith in the theories he mentions.

The question is, what is the curative factor in tubercular peritonitis? It can hardly be the small amount of counter-irritation set up by the use of the knife or aspirator, stimulating the cells to perform their normal function. And can Dr. SHERRILL's explanation be the correct one? The bacilli thrive before there was the accumulation of ascitic fluid; and there is no reason to believe that the mere flushing with normal saline solution deprived them of the power of existence. If there was sufficient material present before the accumulation, then the bacilli should thrive after its withdrawal, because the same amount is present.

It seems then, the "culture-medium theory" can not hold. The matter, so far, is in *statu quo*; and we must seek farther for an explanation. The writer believes this can be found in METSCHNIKOFF's claim as to the extra-cellular destruction of bacteria in the organism (see AMERICAN THERAPIST, May 1895). The peritoneal cavity of guinea-pigs, he says, as that of many other animals, contains, in a normal state, a greater or smaller quantity of lymph charged with all sorts of leucocytes. The injection of PFEIFFER's mixture, composed of the serum of vaccinated animals, vibrio-cultures and broth, creates apparent disturbances in the peritoneal lymph. The number of leucocytes diminishes to such an extent that the lymph, although turbid in the normal state, becomes quite transparent.

While the small leucocytes remain unaltered, the true leucocytes, polynucleated and mononucleated, accumulate in masses and are deposited upon the surface of the abdominal viscera. The damage to the leucocytes is also manifested by the manner in which nearly all these cells become motionless, many of them presenting signs of degeneration. These injured leucocytes, although incapable of capturing the vibrios, destroy them by their secretions. If we withdraw the

peritoneal fluid a few minutes (two or six) after the injection, we can recognize the presence of a great number of these weakened leucocytes, each surrounded by an enormous quantity of vibrios, in great part transformed into granules.

The extra-cellular destruction of bacteria is thus the work of weakened or injured leucocytes. When the cells are stronger, the phenomenon of extra-cellular transformation of vibrios into granules does not take place; but, on the contrary, we see a characteristic phagocytosis. The extra-cellular transformation is thus only the episode of the battle between bacteria and phagocytes, which is the general rule of resistance in the animal organism against bacterial invasion.

The writer believes this to be the true explanation of cure of peritoneal tuberculosis. After withdrawal of the ascitic fluid, with its contained bacteria and toxins, the battle is not so overwhelmingly against the leucocytes. The preponderance of the former is not so great then, as to overshadow the work of the latter, and hence recovery.

A third case of tubercular peritonitis, reported by Prof. GORDON, of Richmond, is presented because of the occurrence of dropsy not in the abdomen. He says there was no abdominal dropsy, but a tender and swollen abdomen, and edema occurring in the feet and legs. Lungs and heart were normal; no family history of tuberculosis obtainable. The prominent symptom was polyuria, and he explains it as follows: Tubercular disease affecting the bulb in any way, would cause polyuria through local dilatation of the renal blood-vessels; but, just as likely, this would be counterbalanced, or overcome, by the contraction of the renal vessels, which is disproportionate to the contraction of the abdominal vessels dependent upon the morbid stimulation of the cord. We are thus led to believe that abdominal disease leads to polyuria by pressure upon the abdominal blood-vessels, or stimulation of the vaso-constrictor

nerves, both of which conditions would increase the renal blood-pressure, and thus result in polyuria.

In conclusion, Prof. GORDON says, "the practical point to bear in mind, is that polyuria may be one of the most prominent symptoms of tubercular peritonitis," even when the abdominal symptoms are not marked. P.

#### NUCLEIN IN LOCALIZED TUBERCULOSIS.

Dr. A. J. ROSENBERRY, of Wausau, Wis., (*Therapeutic Gazette*, Oct. 1895), records the cure of his own case of genito-urinary tuberculosis by means of hypodermatic injections of nuclein solution. Thorough physical examination confirmed by bacteriological examination made the diagnosis unquestionable, and he received daily injections of nuclein from April 1st, 1894, to November 20th, 1894, with steady improvement in the local condition and general health. Only one hemorrhage occurred after treatment was begun. In June, 1895, a bacteriological examination of the secretion failed to find anything abnormal and the physical signs and symptoms had disappeared. The patient is now in excellent health and regards himself as cured. He makes plea for a more general use of the remedy in cases of initial tuberculosis, and concludes his article with the following statement: "I believe that in nuclein we have a remedy of great value in the incipient stages of this disease. Its abundance, and consequent cheapness, and its tonic properties are in sharp contrast to the toxic, destructive action of some of the recently advocated remedies for this disease." B.

#### EDITORIAL NOTES.

To QUOTE aptly is as creditable, it is said, as to write the original. In our September issue we published a number of extracts from a paper in *The Hospital*, entitled "Drugs Many; Remedies Few." We took the five paragraphs at random from the original article, some constituting only parts of sentences, and others being transposed. We find that the editor of

*The Medical Age* appreciated our selection, and that he quotes it exactly as we composed and printed it—omitting only our introductory, and forgetting to credit the AMERICAN THERAPIST. Petty practice!

THE *Southern Medical Record* has recently changed editors, and we take occasion to inform the inexperienced new editor that it is not customary—even in medical journalism—to appropriate, without acknowledgement, five news items from an exchange for one's own "Editorial Notes" department, as happened in his September issue—the August AMERICAN THERAPIST being the victim.

THE EDITOR of the *Charlotte Medical Journal* is a discriminating and methodical writer; he keeps a scrap-book for first-class clippings from his exchanges, and he knows how to adapt such matter to advantage in good time.

We quote the following item from the Nov., '95, issue of the *Dietetic and Hygienic Gazette*:

#### HARMFULNESS OF COUGH MIXTURES.

Speaking of cough mixtures the editor of the *Charlotte Medical Journal* has this to say: "The great harm these products produce is almost unlimited, and should be regarded as a relic of ancient and unscientific methods of practice. Cough mixtures, as a general rule, do more harm than good, and their reckless and indiscriminate use should be carefully considered by physicians. A patient comes to you with a cough. The first thing you do is to give him a cough mixture, and nine times out of ten the principal ingredient is opium. 'Tis true opium may lessen the tendency to cough, but it does a great damage by arresting the normal secretions, and the system becomes affected by the poisons from the kidneys, the skin, stomach, intestines, the pulmonary structures, and the mucous membrane lining of the upper air-passages. You might as well take a brush and varnish your patient all over as to fill him up with cough mixtures. Death is almost as certain from one as from the other, and yet they recover often in spite of the cough mixture. Not only do these damnable mixtures arrest every secretion in the body, but they also show their deteriorating effect through the stomach. They contain nauseants which tend to disorder and derange digestion.—*Western Druggist*.

The italicized phrases have been appropriated, word for word or partly paraphrased, from an editorial in the AMERICAN THERAPIST, October, 1894; and the connecting links are likewise borrowed in fragments from the same editorial.

The editors of the *Western Druggist* and the *Dietetic and Hygienic Gazette* will find the original editorial much more complete and suitable for quoting than the above garbled pseudo-original adaptation by the resourceful scribe of Charlotte.

## Current Literature.

**SIMPLE TEST FOR SUGAR IN URINE.**—JOHNSON furnishes (in *Lancet*, Jan. 12, 1895) the following easy and reliable method :

Place 1 drachm (4 grammes) of urine in a test tube about one-half inch in diameter: add 1 drachm (4 grammes) of a saturated, aqueous solution of picric acid and  $\frac{1}{2}$  drachm (2 grammes) of liquor potassæ (P. B.). An orange-red color instantly appears, as a result of the incipient reducing action of creatinin upon picric acid at the ordinary temperature. If, after the liquid has been kept at the boiling point for about a minute, a bright-red color appears through the test tube when held up to the light, the urine may be confidently pronounced free from sugar. No other method is as easy and rapid for clinical and life insurance purposes.

**HONEY IN ERYSIPELAS.**—Dr. E. C. Hayward, of Cropsey, Ill., writes (*Medical Record*, Oct. 5, 1895): "Several years ago, while treating some bad cases of erysipelas, a lady asked me why I did not use the remedy they used in Montana. I asked her what that was; she said honey. I did use it and found it very effective, and since then have used it in every case of erysipelas on any part of the body. My first treatment is the external application of honey. I shave the head and face if necessary, spread the honey thickly on cloth, cut holes for the eyes if the face is the part affected, and change the application every three or four hours. I have never had it fail to relieve the pain, heart swelling, and nausea, and to shorten very much the attack. I also give internally the usual remedies for reducing the fever and stimulating the emunctories. Three or four days usually suffice to bring about convalescence under this treatment. I could report numerous cases, but would rather every physician would give it a trial, and I am sure he would find a practical addition to his armamentarium."

**TREATMENT FOR HEADACHE—NOT ANEMIC.**—Dr. W. C. Buckley, in *Medical Summary*, Nov., 1895, reports :

In the treatment of *headache, not anemic*, give a dose of *dosimetric seidlitz* salt every morning to free the alimentary tract of irritating material. Then give four grains of lactophenin. Repeat 4 or 5 times a day if necessary. It is also most effectual for *neuralgia, rheumatism* and *sciatica*. When a general tonic is also required give one granule of the arseniate of strychnine, or the hypophosphite of strychnine, or the lactophosphate of the same, as seems most indicated in connection with the lactophenin. I give them in alternation after the dosimetric plan, and I have the very best of success with them.

The lactophenin is a superior remedy of its class, as it does not depress the circulation like others of the group of anilides.

**TETANUS ANTITOXINE SUCCESSFULLY EMPLOYED.**—Dr. Paul Gibier received a letter yesterday (*N. Y. Press*) from Dr. Wray Grayson, of Washington, Pa., containing an account of a case of tetanus cured by the anti-toxine treatment.

The patient, whom Dr. Grayson designates in his letter as "B. T., a sturdy boy of six and one-half years old," while playing in his father's barn in September, stepped on a piece of rusty wire which penetrated his right foot nearly an inch. The wound was very painful, but after a week it healed. Seven days afterward the boy became ill.

He complained of a loss of appetite, stiffness of his jaws and cramps in his legs. His jaws became locked, the muscles of his face were drawn, his legs grew stiff, and he suffered such intense agony that chloroform was administered to relieve him. The case assumed such an alarming aspect that Dr. Grayson telegraphed for anti-toxine, which was sent to him at once. The injection was made as soon as the anti-toxine was received, and within a few hours its effect was noticed.

"Almost immediately," writes Dr. Gray-

son, "the boy's convulsions became less intense, and finally ceased. The tension of the muscles was relieved, and in a few days all danger had passed." After that the patient's recovery was rapid, and gradually he was relieved of pain. He regained the use of his jaws, and with it came the return of his appetite. He is now pronounced entirely cured.

"This is the third case of tetanus in a human being," said Dr. Gibier, "which the anti-toxine has cured, and it proves conclusively that it is good for man as well as beast. The case of Joseph Revers, who died of tetanus on Monday, was a test in no sense. The disease had progressed so far that nothing could have saved the boy."

**ABOUT LOCAL TREATMENT IN HAY FEVER.**  
—Dr. William M. Capp contributes the following observations to the *Philadelphia Polyclinic*:

Hay fever is just now on hand, because its time has arrived. Its presence is attested by the explosive sneezing, apparently causeless, which salutes our ears. It is too late this season for prophylaxis. Local palliative treatment is in order. There are some considerations on this point worthy of attention.

Careful investigation seems to make it clear that in the great majority of cases the inferior turbinal in the nasal cavity is involved in the trouble; whether as cause or effect, need not be inquired into here. Two distinct spots or areas on this part of the mucous membrane are pointed out, one at the posterior and one at the anterior extremity, one or both of which may be supersensitive in individual cases; also there is a spot in the interior nasal chamber at the upper angle formed by the septum. All these are exquisitely sensitive and when irritated produce extensive reflex symptoms. Trouble appears to begin at one or all of these points, while the rest of the Schneiderian membrane is in normal condition; but if paroxysmal sneezing supervenes, general hyperemia

and hyperesthesia ensue, and, through continuity of tissue, may extend to regions of the throat, bronchia, ears and eyes. The aim, therefore, is to prevent sneezing, and the practical point in attempting to gain it by applications is, to treat the sensitive area only and not to harm by exciting neighboring surfaces. Almost any of the medicaments used upon the diseased membrane will irritate and inflame the normal membrane if applied to it during health. The nose is as intolerant of foreign bodies as is the eye. The healthy membrane should not be disturbed; otherwise, at this time, all the dreaded symptoms may be induced independently of reflexes from the super-sensitive areas. Applications may be conveyed upon a cotton-wrapped probe to the precise spot to be treated; or a drop or two deposited from a pipet; but a spray or vapor which will pervade the whole cavity, if it has strength enough to benefit the affected part. To use a douche or an insufflation of powder in the sensitive nasal cavity is rough and unnatural usage at any time, but in most cases, during especial hyperesthesia, it is a procedure bordering on barbarism. It may be helplessly tolerated while mentally resented by the patient, whose sufferings are thereby increased, and it is liable to produce disastrous results; usually, too, the physician has other and better means of treatment at his command.

**PALLIATIVE TREATMENT OF HAY FEVER.**—Dr. Frederick G. Smith, of Somerville, Mass., suggests palliative treatment based on his successful general practice (*Medical Record*). After referring briefly to treatment by cautery and with aid of sea voyages and change of climate, he says:

A large majority that apply for treatment to the general practitioner are not possessed with the means to take a sea-voyage or to spend several months in the mountains, so we must resort to means more within the reach of all. Referring, then, to the palliative treatment, local ap-

plications are to be recommended. Sprays of various sorts produce only a transitory effect, besides not being convenient. Cotton has been used in the nose with a view of preventing the irritating substance, whatever it may be, from gaining access to the hyperæsthetic membrane, but most people do not like the sensation, and the cosmetic effect is not wholly attractive. Ointments produce a twofold effect, viz., combined with anæsthetics they diminish hyperæsthesia, and shield the nerve terminals from irritation. The following combination I have found very effectual, and I have yet to see a case where it did not give almost instant relief.

R Mentholis .....	grs. xx.
Olei amyg. dulcis .....	3 ij
Acidi carbolicis .....	℞x.
Cocain hydrochlor. ....	grs. vj.
Ung. zinci oxidi .....	3 ss.

Sig.: Apply thoroughly to the nostrils on cotton attached to a tooth-pick.

It will at once be seen that cocaine is the chief drug to be relied upon, but I do not think it is the only one, as I have used it in other ways with much less satisfaction. It is the combination as a whole that I think worthy of notice, and while empiricism ought generally to be discouraged, I think in the disease under consideration it seems justifiable. There are adjuncts that are valuable in these cases depending upon the general condition of the system. Out-door exercise, Bland's pills in anæmia, and arsenic, strychnine, and phosphorus, as indicated, are too well known to warrant comment.

**EPIDEMIC INFLUENZA.**—From an elaborate review under above title, by Dr. Wm. Leland Stowell, in *Archives of Pediatrics*, Oct., 1895, we quote the following pertinent and available directions:

**Treatment**—There is no antidote to the influenza toxine. As in other infectious diseases, when the poison is in the system, we must try to sustain the parts liable to suffer from its presence. Elimination must be promoted—from the lungs by expectorants, from the digestive tract by

cathartics which increase secretion, from the skin and kidneys by drugs acting on the circulation.

In some cases cardiac depressants will act best, in others stimulants. If general treatment still leaves the patient suffering in some one part, give a symptom remedy for its relief. Phenacetin, antipyrine, or acetanilid proved good for the headaches. Doses must be small for small children. Old-fashioned diuretics and diaphoretics relieved fever and joint aches. Salicylate of soda came to be my routine for cases with pains and fever, two or three grains being given every three hours to older children. Stimulating expectorants, with carbonate of ammonia or camphor, were helpful after the first few days. To many patients I gave nothing but maltine and carbonate of ammonia. The latter must be dissolved in water before mixing with the maltine. In this way the irritating effect of the ammonia is obscured, and both food and stimulant are taken every few hours. The older children and adults did well on maltine with coca wine, which seemed to be especially adapted for enfeebled nerves.

For slow convalescence, give all the food possible, with remedies that aid nutrition, *e. g.*, beef juice, eggs and milk, wine-whey, malt and iron, or cod liver oil. Embrocations are helpful; alcohol may be used one night and olive oil the next night. The ancients held embrocations in high esteem, but now we are prone to leave them for the athlete and prize-fighter. The sick and feeble are more in need of them. Alcohol was rarely given, as I do not often administer it to children with any disease. In this I agree with the quaint Dr. Harris, who wrote, in 1690, "all Sorts of Spirituous Liquors destroy the natural Ferment of all Stomachs, especially of those of Children; they weaken all the Nerves of the Body and most certainly drive the animal Spirits into all Sorts of Confusion."

Epidemic influenza is a self-limited disease, which we cannot cure if we would.

Like enteric, or other fevers, we can only treat symptomatically, and guide through storm from which we cannot escape. A little prophylaxis may be exercised by closing schools on the appearance of an epidemic and by discouraging attendance of assemblies, as lectures, theatres, etc.

In review, it appears that influenza is a very old disease, of which scarcely any new thing can be said. The forms of its occurrence are the same as centuries ago. The leopard has not changed his spots. It travels as of old, except faster, as people travel. The mortality is the same, even under nineteenth century treatment, relatively few dying directly of the disease, but many of secondary complications. The aged suffer most and the children least. The latter escape because they rarely have organic diseases. The one thing we have discovered is the cause. But how to meet and annihilate it remains to be demonstrated.

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### Book Notices.

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A GERMAN-ENGLISH THESAURUS, with German and English Indices. By Rev. HENRY LOSCH, M.D., of Philadelphia. Cloth, 8 vo., pp. 323. Philadelphia, 1895: Published by the author.

The rapidly increasing requirements of the modern physician are such that it becomes necessary to become more or less familiar with foreign languages, and in no case is this demand more apparent than in respect to German. To our German confreres is due much of the experimental investigation which promises to advance the science of therapeutics, and in many instances, to read an article with satisfaction it must be examined in the original. For many of our American physicians this is a slow process, but with the advantages of such a work as that offered by Dr. Losch, much of the labor is lifted and physicians with a modicum of German may read with much benefit numerous interesting and instructive papers, which otherwise would not be obtainable.

This work is conveniently arranged in three parts. The first part consists of a systematically arranged list of simple and compound medical terms in the German, together with the definition in English, and the fulness of the latter will materially aid in rendering them easily remembered. The second part is devoted to the definition in English of a collection of German words denoting hygienic, surgical and domestic affairs, which must prove of general interest. Part III is taken up with indices, both German and English, each word being referred to by number to the corresponding German word found in the first part. In addition to this, there is also a concisely arranged series of dialogues; and as a whole, it readily commends itself to the studious physician.

A STANDARD DICTIONARY OF THE ENGLISH LANGUAGE, UPON ORIGINAL PLANS. Prepared by more than two hundred specialists and other scholars under the supervision of ISAAC K. FUNK, D.D., Editor-in-Chief, with FRANCIS A. MARCH, L.L.D., I.H.D., Consulting Editor, and DANIEL S. GREGORY, D.D., Managing Editor. Vol. II., M. to Z. Full Russia, 4to., pp. 2318. New York: Funk & Wagnalls Co., 1895. Price \$8.50 per vol.

For some time past the writer has had this second volume of the magnificent work upon his desk and has had frequent occasion to consult it, both for the definition of medical and of literary terms, and has always found it most satisfactory. When the first volume appeared, more than a year ago, we took occasion to speak of the many merits of the publication, and we desire now, to emphasize our previous remarks concerning the reliability, the fulness and extended scope of the publication. Indeed, it is encyclopedic in character, as may be inferred when it is stated that the actual number of words defined exceeds three hundred thousand, and besides we have a list of more than forty thousand "Proper Names of all Kinds," together with their pronunciation. This latter list includes notable names in bibliography, bibliology, biography, fiction,



geography, history, together with a vast amount of etymological, historical and statistical information, briefly stated for convenient reference. In addition, the appendix contains a language key, an account showing the principles and explanations of the scientific alphabet, a glossary of foreign words, phrases, etc., used in literature, an elaborately alphabetically arranged contribution giving examples of faulty diction, together with a list of several thousand words whose spelling is disputed, giving also the author's names.

The completion of the second volume of the Standard Dictionary marks an epoch in book-making in America. The undertaking was conceived and carried out on a grand scale; it has commanded the best scholarship in both hemispheres; it has met with the most flattering testimonials from literary and professional men in every department of human industry; and it is destined to occupy a place in the library and in the home circle second to none of its predecessors; it is unsurpassed in accuracy, and will long continue to be a monument to the untiring energy of its editors and collaborators.

### PAMPHLETS RECEIVED.

Tetanus. By JUSTIN HEROLD, A.M., M.D., New York City. Reprint, 1895.

The Osteopathic Fad. By A. J. STEELE, M.D., St. Louis, Mo. Reprint, 1895.

HOW SHOULD WE BREATHE? A Physiological Study. By G. H. PATCHEN, M.D., of New York. Reprint, 1895.

Oil of Wintergreen and Oil of Sweet Birch; by Dr. FRED. B. POWER and Dr. CLEMENS KLEBER. Publishers: FRITZSCHE BROTHERS., New York. October, 1895.

FROM A. LAPHORN SMITH, M.D., of Montreal, Canada, the following: (1) Recto-vaginal Fistulæ and Fistulæ About the Anus in Women; (2) Vento-fixation and Alexander's Operation Compared; (3) Five cases of Pyosalpingitis; (4) What has Sewer Gas got to do with Bad Results in Obstetrics and Gynæcology?

FLAT-FOOT.—Its Correction and Comparative Study, etc.; Lupus Treated by Galvanism; Double Club Feet and Hands—Treatment; Hemorrhoids—Prolapsed Rectum—New Operation. By MERRILL RICKETTS, Cincinnati, O. Reprint, 1895.

THE ARCHIVES OF PEDIATRICS will commence its thirteenth year with the January number, under the business management of E. B. Treat, Publisher, of New York, long identified with medical publishing interests. The "Archives" has been for twelve years the only journal in the English language devoted exclusively to "diseases of children," and has always maintained a high standard of excellence.

The new management proposes several important change in its make-up; increasing the text fifteen per cent. and enlarging its scope in every way. This will give full room for the fuller contributions and additional collaborators who have been secured for the various departments, all of which give promise of a more successful area than has been known even in the already brilliant career of the journal.

The editorial management will be in the hands of Floyd M. Crandall, M.D., Adjunct Professor of Pediatrics, New York Polyclinic, and Chairman of Section on Pediatrics, New York Academy of Medicine.

SAUNDERS' AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY—Edited by George M. Gould, A.M., M.D., assisted by eminent American physicians and teachers.—Notwithstanding the rapid multiplication of medical and surgical works, still these publications fail to meet fully the requirements of the *general physician*, inasmuch as he feels the need of something more than mere text-books of well-known principles of medical science. Mr. Saunders has long been impressed with this fact, which is confirmed by the unanimity of expression from the profession at large, as indicated by advices from his large corps of canvassers. This deficiency would best be met by current journalistic literature, but most practitioners have scant access to this almost unlimited source of information, and the busy practitioner has but little time to search out in periodicals the many interesting cases, whose study would doubtless be of inestimable value in his practice. Therefore, a work which places before the physician in convenient form an *epitomisation of literature by persons competent to pronounce upon the value of a discovery or of a method of treatment*, can not but command his highest appreciation. It is the critical and judicial function that will be assured by the editorial staff of the "American Year-Book of Medicine and Surgery."

It is the special purpose of the editor, whose experience peculiarly qualifies him for the preparation of this work, not only to review the contributions to American journals, but also the methods of discoveries reported in the leading medical journals of Europe, thus enlarging the survey and making the work characteristically international. These views will not simply be a series of undigested abstracts indiscriminately run together, nor will they be retrospective of "news," *one or two years old*, but the treatment will be *synthetic and dogmatic*, and will include only what is new. Moreover, through expert condensation by experienced writers, these discussions will be comprised in a single volume.

The work will be replete with original and selected illustrations skillfully reproduced, for the most part, in Mr. Saunders' own studios established for the purpose, thus insuring accuracy in delineation, affording efficient aids to a right comprehension of the text, and adding to the attractiveness of the volume. W. B. Saunders, Publisher, 925 Walnut St., Philadelphia.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. IV.

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No. 6.

## Original Articles.

### METHODS OF RESEARCH AND IMPORTANCE OF CELLULAR PSYCHOLOGY.

By ELMER GATES,  
Professor of Psychology and Mind-Art.

#### *What is a cell?*

All living things are either unicellular organisms, or coherent, functionally connected, groups of cells. A cell is the simplest known form of a living thing, and it consists of a small mass of matter a fraction of a millimetre in diameter, having a denser central portion called a nucleus, which is surrounded by a larger and more motile and more fluid mass of cytoplasm, whose surface by contact with the medium of the environment has acquired a more or less changed chemical and physical character so as to constitute for the cytoplasm an enveloping membrane or cell-wall. The cell is not such a simple, structureless affair as was formerly supposed—it is indeed astonishingly complex. The cytoplasm has a foam-like structure, which has been pretty successfully imitated by Bütschli's microscopic foams made out of emulsions of oil and alkaline waters, and the nucleus, which is the centre for all reproductive changes, is wonderfully complex. Different methods of staining reveal not only a variety of tissues in both the nucleus and cytoplasm, but a variety of chemical compounds, which vary with the degree of development and specialization which the cell has attained. The typical cell consists of a nucleus surrounded by cytoplasm, and neither of these parts can live

independent of the other, but the true character of the cell seems to be mostly centered within the nucleus. All cells must live within a liquid medium from which to absorb food.

In its simplest form, the cell, as the lowest known living creature, consists of a mass of protoplasm capable of assimilating foods, of moving, of responding to stimuli, and of growing and reproducing its kind. It consists of many organic compounds between which survival of the fittest has taken place, and the simplest organic unit is doubtless some small portion (somaule) of the cell-mass, and there may be many kinds of somaules. But the simplest form of this distinction between inorganic and organic or living matter is that of *automatic metabolism*, whereby foods are absorbed at the surface of the cytoplasm and are oxidized in such a manner as to create energy and supply new tissue, the waste products being at first absorbed or dissolved by the surrounding liquid medium, and in later evolutionary stages disposed of through special channels. The ability to maintain a temperature slightly above that of the surrounding medium, and to renew its substance and add thereto interstitially, and also to store up a surplus quantity of energy for movement of its parts is characteristic of living bodies as distinguished from inanimate bodies; this living or vital capacity is an *adaptive* functioning by which the organism adjusts its internal movements and relations to external movements and relations, which is a mental characteristic. The protoplasmic mass *feels* an appropriate stimulus and responsively *adapts* itself to the new condition—and this *feeling* as well as the *responsion*

is a quality of mind. For these and many other reasons the distinction between lifeless and living matter is, that in living matter there exists a functioning of the kind known as mental, and hence its vital quality is a mentative phenomenon. A cell is a *living* creature.

*Where should psychologic studies begin?*

The study of living things must therefore begin with cellular organisms, and the psychology of the cell constitutes the basis of all higher psychology; just as by multiplication the cells up-build the mass of the higher vertebrate, so by concomitant division of labor the combined mentative activities of the cells constitute the mental life of the multi-cellular community composing an animal. Cells combine into groups of cells, and these groups in their turn into larger groups amongst which division of labor (mental activity) has taken place—some groups supplying soluble nutriment to the interior portions of the mass, and other groups removing the debris, and still other groups attending to movement, or to responsion to certain stimuli, and finally, a number of such groups combine under the control of a ganglion. Various ganglia combine into an "organ," and the ganglia of various organs at length become united by a common nerve-tract, and so on, each such stage of development representing a higher degree of mind-embodiment. It is evident that the degree of mind-embodied by the organism is the true taxonomic basis in biology, and that whilst morphology and genetic relationships will continue to constitute important data in the determination of the degree of mind achieved by the organism, it is evident that a direct study of the mental phenomena of the organism will in the future form the most important factor in classification and nomenclature. The coming biologic taxonomy will be psychologic! And so will its terminology! A living creature is a mind-organism.

In the human organism all lower groups of ganglionated organs are united into a

common "person" by the cerebral cortical activities, or more properly speaking, by the complexes of organic and cosmic functionings localized therein. Lower ganglia than that of the cerebrum in the human individual have their own mentative activities and memories necessary for the performance of their specific functions in the economy of the organism, but their own consciousness and mental life constitute the sub-conscious processes out of which arise the consciousnesses of waking life. The mind of a man is the result of multitudinous mentations of which he never becomes directly aware, and these mentations are the combined adaptive functionings of myriads of cells, and the functioning of each cell is the product of its own individual activities *plus* the interaction of cosmos of which that cell is a functional part.

*The cell and cosmos.*

A cell is not only a part of the universe and a direct product of the activities of the universe, but is itself an independent source of reactions with the universe; it is one of the factors which must be considered in computing the reactions taking place within the universe. It is a *material* part of the universe, and as such exerts its own mechanical series of reactions upon cosmos. It is *dynamically* part of the total energy of cosmos, and as a coherent system of motions exerts its own modifications upon the total system of motions in space and time. But by means of its capacity to adaptively respond to stimuli it introduces into the universe a system of activities modified by mentation. Through mentation the cell commences to be regulated by conditions of truth more general than the sum of its individual experiences, and thus the cell lays hold upon the universal, and not merely local possibilities of cosmos. The cell is a *very little* affair in size and can affect the universe but little, but the universe is *very big* and can exert an infinite action upon the cell through the mind which it has commenced to embody.

*A bio-psychologic method of studying cell-mentation.*

The study of cellular psychology belongs partly to the domain of biologic psychology. By experimentally varying the environments of cells these lowly creatures are caused to exhibit different adaptive activities or mentations, and by these means we can correlate given mentations of cells with given environmental conditions and given structural conditions of the cell. By selective propagation these organisms can be rapidly evolved to higher forms or retrogressed to lower forms, and as new structures and morphologies arise the accompanying mentations can be studied and correlated with given cellular structures. By these means we study environment and cell-structure to determine the nature of their corresponding mentations: we vary the factor of structure and environment (which includes not merely the immediate neighborhood, but cosmos) to determine what changes take place in the factor of mentation; and we thus discover the causal relation between organic structure in reaction with the environment and the mentative phenomena which arise, without fully attempting to define what those mental phenomena are, except to state that the mentation requires as an essential condition certain structures on the part of the organism (the mentations varying with the structures), and certain interactions with the cosmic environment (the mentations varying with the environmental conditions. As to what else the mind may be, biological psychology does not reveal to us—this science does not deny that mind *may* be much else—it simply asserts that whatever else the mind may be, it at least consists of such phenomena as those mentioned.

*When this method was first used.*

The variation of the environment of cellular organisms, and the study of the concomitant mentations as a *method of psychologic* research was, I believe, first invented by myself some years ago (in 1882), and first publicly taught about 1890.

I do not mean that I was the first one to experiment on organisms by making changes in the environment, but that I was the first to use this as a *method of psychologic* research by systematically varying environmental conditions, and systematically recording the cellular activities minutely as arising out of each definite environmental change so as to correlate mentative changes with environmental changes in a given organism. It is a fruitful field, and demands much further investigation by students specially trained for these particular lines of work and thought.

*Another bio-psychologic method.*

At the same date I first invented and taught, as a method of psychologic research, the experimental variation of organic structures by rapid artificial evolution by means of a systematically regulated selective propagation. I was not the first to apply selective propagation to animals and plants and cells, but, so far as I know, I was first to apply selective propagation to the making, or experimental varying, of organic structures as a *method of psychologic research* so as to determine what mentative phenomena belong to varied organic structures and morphologies. Cells subjected to a given environmental condition, let us say a gradually augmented cold or heat or series of concussion, are slowly modified in their chemical constitution and morphology and size. By augmenting the intensity of the concussions or the heat gradually, so as to kill off all the individuals of a large colony of cells except one or two, we leave those best adapted to renew the colony. As soon as a large colony of millions of cells has again been acquired they are again subjected to a gradually increased intensity of concussion or temperature or chemical solution, until all are killed off except one or two most capable of withstanding the condition. If the unfavorable condition of environment were not *gradually* augmented all of the cells might be killed and the experiment lost, or some might survive which where not best ad-

apted to the conditions owing to the quickness of the change, and in that case would reproduce their kind and render more slow the evolution of the organism. As new creatures thus arise, with new chemical constituents in the cell-mass and new structures, the accompanying mentations or adaptive activities are carefully recorded and correlated with the structures. It does not require mutilations to make new structures by this method. Low organisms can thus be rapidly evolved to higher organisms with new and more complex structures, or retrogressed to lower organisms with less complexity of structure; and as new structures arise or pass away, it is interesting to note what concomitant mentations also arise or pass away. By this method of research much that is new has been discovered regarding the relation between structure and mentation, and much that is new yet remains to be discovered.

These two new methods of psychologic research make the scope of biologic psychology a very large and important one. These methods are applicable to higher organisms as well as to cells and protozoa, but these applications will elsewhere be described.

*These methods applicable to medicine.*

The methods are applicable also to the study of the cells within the vertebrate organisms, with applications to hygiene and therapy. The antitoxin and serum experiments of recent dates by Pasteur, Koch, Roux, and their followers, and the nuclein experiments of Aulde and Vaughan, have demonstrated that by changed conditions of environment, gradually brought about, the cells of the human organism can be rendered immune to hitherto dangerous diseases; and much further progress along these lines will result when by the new methods of research just described the psychology of the cells of the human organism are made the basis of therapy. This method applied to groups of cells constitutes a form of cellular sociologic psychology.

*The psycho-biologic method of studying cell-mentation.*

The study of cellular psychology belongs also partly to another domain—that of psychologic biology. In this domain the methods of biologic psychology are reversed. Instead of varying structure and environment, the factor that is varied is that of the mentations or adaptive activities of the cells. As the mentations are varied a record is made of the new structures and environmental changes that arise.

*When first discovered.*

This method was first used, as far as I know, by myself, in 1882, and was first publicly taught in 1890. It consists in experimentally varying the mentations of cellular organisms by artificially regulated means, and then in recording the structural and environmental effects of such mentations. Thus the creature is caused to react or respond to a given stimulus, such as light, or pressure, or sound, or chemical irritants, and this activity is kept up almost constantly during the life of the cell and even during the life of many succeeding generations of those cells. That is, the cell is caused to exercise that particular kind of mentation in excess of all other kinds of activity, and the corresponding structural changes noted. Activity produces growth in the functioning structures, and excessive activity of a definite kind, such as frequent responsions to light, soon produces a growth of a definite kind in excess of that possessed by other organisms of its kind. Mental activity thus creates new structures. The mentations of the organism build the structures of the organism, and every structure represents embodied mind-activity. An organism is therefore a mind-organism, and psychology teaches us the meaning of life by revealing the fact that organisms are transforming-mechanisms interacting with cosmos for the manifestation or production of *mind*. Vitality is mentality, and biology is a psychological science.

When a protozoan organism is allowed

to multiply, generation after generation, under precisely similar conditions of environment and activity, there is no observable change in structure or activity; but as soon as these organisms are compelled to exercise some one form of activity more than the others there soon arises an observable chemical and structural change. The activity is, under these strict conditions, the cause of the change; and as the *response* to the stimulus which caused this excessive activity is a mental phenomenon it follows that mentation causes structure, and that the structure so formed is the embodiment of that form of mentation. This psycho-biological method of studying cellular phenomena is applicable not only to individual unicellular creatures, but to groups of societies of cells, as Zoogloeia and Volvox, and also to such functionally-integrated groups of cells as the metazoan organism. When applied to groups of cells we have a form of cellular psychologic sociology.

*Mentation affects environment.*

The activities of cells affect, not only the structures of the organism, but the environment also. Just as changes in the environment produce changes in the mentations of a creature, so changes in the mentations of a creature produce definite changes in the environment. Thus the creature may directly appropriate some of the environment to itself, creating a totality outside of itself which is a different totality than before this matter was appropriated; or it may by its movements differently distribute certain particles of the environment, or produce wave-motions of a molar kind in its surrounding medium (such as sound-waves), or of a molecular kind (such as heat-convection and heat-conduction), or of an etheric kind (such as heat-rays or color-rays), or it may throw off the products of a different metabolism thus altering the chemical character of its immediate environment.

*The three new methods of research in cellular psychology.*

Hence there are three new methods of

experimental research in the domain of cellular psychology:

1st. The method of experimentally varying the environmental conditions, one (or more) at a time, and studying the concomitant mentations so as to correlate environmental conditions which have been definitely known and regulated with the mentations that arise under these conditions. This method belongs to biological psychology.

2nd. The method of experimentally varying the structures of an organism by progressive or retrogressive evolution through graded selective propagation, and studying the concomitant mentations so as to correlate structural conditions which have been definitely known and regulated with the mentations that arise under these conditions. This method belongs to the realm of biologic psychology.

These two methods have for the known factors the experimentally established and maintained environmental and structural conditions, and the unknown factors are the mentations which arise out of these conditions. Mind is interpreted in the terms of structure and environment. Both the molar and molecular conditions of the environment and organic structure are subjected to experimental variation, and so are the various radiative forces which may be incident upon an organism.

3rd. The method of experimentally varying the mentative activities of an organism, and studying the structural and environmental changes which arise so as to correlate mentations which have been definitely known and maintained with structural and environmental changes which were the unknown factors until they arose under the experimental conditions. Two distinct sets of observations must be made when the mentations have thus been varied, (1) the structural changes in the organism must be noted and correlated with the mentative conditions, and (2) the environmental changes must be noted and correlated with the mentations. This method belongs to psycho-

logic biology. Organic structure and environmental conditions are interpreted in the terms of *mind*. Biology, and all the products of mentation, such as the sciences, arts, and the products of art, are to be studied and interpreted as mentative phenomena.

*Allular psychology is of fundamental importance.*

But there is further evidence of the fundamental character of cellular psychology as the basis for the understanding of the more highly evolved mental operations of the human organism. The entire vertebrate body (and for that matter, the bodies of all metazoa) is the result of the functionings first embodied in an ovum, nay, in the *nucleus* of the ovum. The human organism is the result of the segmentations, cell-multiplications, and functional specializations of an ovum or egg-cell. The nucleus first subdivides, and the resultant subdivisions grow in size as they continue to subdivide until all the organs of the fully developed being have been formed—the whole organism being the product of the activities of the cells. Cell-metabolism underlies all the motor, nutritive, and reproductive changes of the animal organism, and as metabolism is directly connected with mentation, nay, as automatic metabolism in the first and simplest form of mentation or adaptive activity, it follows that cellular psychology is of fundamental importance in the study of life in all of its aspects.

Unicellular organisms possess all of the different forms of activity to be found in the higher animals. Thus the simplest cell can transform food into tissue and other metabolic products, and this is the basis of all of the nutritive activities and processes of the higher animals; the cell can move parts of itself and is capable of locomotion, and this is the basis of all movement in the higher animals brought about by bones and muscles; the cell can feel a stimulus and respond, and this is the basis of the sensory faculties of the higher animals; the cell can reproduce itself by

segmentation, and this is the basis of reproduction in the higher animals; the cell on dividing inherits the actual qualities of its parent mass, and this is the basis of heredity; in short, the cell contains in simplest form all of the activities to be found in man. In the phylogenetic and ontogenetic history of the individual animal these cells in undergoing multiplication also undergo specialisation of function by having some one of these fundamental functions accentuated or emphasized until a new cell is produced that differs in each case as much as a liver-cell differs from a muscle-cell or a fat-cell or a brain-cell. Now, fundamental in all of these physiological activities of a cell is a form of functioning out of which all of these special functions of the cell developed, and that fundamental activity is that which distinguishes inanimate from living matter, namely automatic metabolism.

The *aggregate* of chemical organic inanimate compounds which compose a dead cell lacks at least one thing to make it *alive*, namely the power to adapt its internal molecular movements and relations to the environmental molecular movements and relations—it lacks adaptive reaction to cosmic stimuli. The maintenance of tissue-waste and growth by the chemical assimilation of foods, and the storage of surplus energy for movements, and the capacity to feel or respond to stimuli,—and to do this automatically, is automatic metabolism, and it is this which distinguishes dead from living matter;—there may be still other unknown distinctions, but these, which have been specified, are some of the essentials. A crystal (or any known form of inorganic matter) does not take into its body foods and chemically transform them into substances of its own kind and eliminate the residues in such a manner as to store up energy to be used in effecting movements of its parts in response to stimuli, and in such a manner as to produce growth interstitially.

Inorganic matter has not the power of locomotion—of self-initiated movement.

Light may decompose an inorganic compound, or may warm an inorganic body, but such a body makes no attempt to move towards the light or to move away from a hot needle. It cannot adapt itself to its surroundings, and without any resistance of a responsive character suffers itself to be destroyed bit by bit. There is no taking in of chemical substances and transforming them into other compounds and eliminating the useless products—no changing of substances from a higher energy-potential to a lower one—the crystal grows by accretion of molecules of its own kind, and has no such a series of adaptive reactions to cosmos as automatic metabolism. Automatic metabolism is a self-maintaining series of chemical adaptive reactions to the environment, and when such a living mass grows to the limit of its size it subdivides into two nearly equal parts, each part inheriting the characteristics of the parent mass. Those masses most favorably situated for growth and activity will of course transmit to their descendants these favorable coaracteristics, and therein lies the begining of organic evolution—favorable variations are preserved. But are characteristics acquired during the lifetime of the cell transmitted to the offspring? This question, at present so hotly disputed, can be definitely settled by the third method of research before-mentioned—the psycho-biologic method. Excessive activity of the cell in any one definite kind of mentation, such as persistently repeated responses to some one stimulus, soon produces excess of growth in some definite portions of the cell and these acquired growths are transmitted to the offspring, because, without killing off those individuals which do not respond as readily as some others, there is a gradual change in structure and activity noticeable after a number of generations. And this brings us to the fourth new method of research in cellular psychology; but I will, before describing this method, make a few more remarks about metabolism.

Automatic metabolism is not merely an equilibrium between the system of molecular motions within the cell and the molar and molecular motions of the environment—there is more than an equilibrium; there is such an equilibrium in an inorganic compound; but in the animate mass there is an accumulation of material specially prepared by the cell, a storage of surplus energy and a utilization of energy in maintaining a temperature slightly above that of the surrounding medium, and in performing molar motions of the parts of the mass. The cell is a transformer of chemical energy into the energy required to maintain automatic metabolism. The cell does work upon its environment—it is a machine which burns fuel—a transformer through which energy flows from a higher potential to a lower potential—and this accumulated energy enables the cell to maintain its existence against the antagonisms of certain conditions of the environment.

The aggregation of a metabolic mass from organic compounds is a cosmical process—the functioning of the environment produces, let us suppose, certain higher colloids; and further functioning of the cosmos transforms these colloids into a piece of protoplasm. It does not matter at present how this is done, or what unknown processes enter into the creation of a piece of protoplasm, the fact which I desire to emphasize at present is, that cosmical activity or functioning *precedes* the creation of the protoplasmic structure and creates it. Born of the universe this cell is still part of its mother—materially and dynamically and functionally a part of the cosmic whole, and its activities are the result of its own metabolism in *interaction* with the cosmic totality;—the forces, etheric and molecular, which make metabolism possible, are cosmic; the very medium in which it exists is cosmic, and each molecular movement and chemical change is directly connected with the etheric inter-atomic medium which forms the frame work, as it were, of the universe.



Every locomotion requires the direct reaction of the universe to move the cell forward—just as much as the cell by its pseudopodia pushes in a certain direction to move itself forward just that much does the universe push in the opposite direction upon the cell—action and reaction are equal and opposite. Every action of the cell upon its environment must necessarily be accompanied, as the very condition of the possibility of that action, by an equal reaction on the part of the universe upon that cell. Every stimulus is a cosmical activity upon the cell, and every response from the cell is a functional reaction of the cell with the cosmic whole. Mentation is, therefore, the result of two factors—the activity of the cell and the activity of the universe.

The cell is an independent factor—it is not only born out of the universe, but it is one of the actual portions of the universe and helps to make the universe what it is. The universe is composed of bodies, and this cell is one of those bodies;—it is a differentiated portion of the universe, and in being thus differentiated it has taken with itself a portion of the matter and energy of the universe, and hereafter the universe must reckon with the system of activities which that cell has embodied—the cell becomes an independent source of reactions upon the universe. Just as cosmical functioning preceded and created the cell, so the cell's functionings inherit the creative power of the cosmos, or some of it, at least, and the activities of the cell create its own structural growths. Under the definition of mentation as an adaptation of internal motions and relations to external motions and relations, it follows that automatic metabolism is mentation, and hence mentation is the causative factor of organic progress.

An animate body differs from an inanimate body because, among other things, it is capable of adaptive activities—it adjusts acts to ends—it feels stimuli and adaptively reacts—this is a mental characteristic. The mentation of the

highest animal does not differ in *kind* from that of automatic metabolism, for both are reactive adaptations of the internal systems of motion to the external systems of motion—the adjustment of activities to feelings or ends—and all this is a prerogative of mind.

I have dwelt on these aspects of the question, because metabolism is of fundamental importance as being the most simple known form of mentation—the most primitive kind of adaptive reaction which distinguishes animate from inanimate bodies. And out of automatic metabolism has arisen specialized functionings by variation and by the creative action of mentative functionings. Metabolism supplies the cell with food and one of the fundamental adaptations must necessarily have been of a chemical character—to absorb the right kinds of pabulum and reject the wrong—and out of this food-sense arose the senses of taste and smell. The *molecular* activities lie at the basis of cell-life, and hence the fundamental responses to stimuli are molecular, such as taste, smell, temperature, senses, and seeing. Out of the chemical reactions of foods arose the taste and smell of higher animals; out of temperature reactions arose the two temperature senses; out of effects of light upon chemical compounds arose the sense of sight; and out of pressures affecting the metabolism arose the senses of touch and hearing.

Molar movements of the cell-mass are the results of metabolism, and in higher animals the muscular fibers contract in response to stimuli by means of molecular movements which take place within the cell-substances enclosed within the sarcolemma which surrounds the fibril. Nerve cells have their functionings based in metabolic changes of the nucleus and cytoplasm, and my experiments, elsewhere described, have abundantly proved that every form of higher mentation is accompanied by a characteristic metabolism.

All of the higher forms of mentation are modifications of activities found in a

fundamental form in specific automatic metabolism, and it is in the metabolism of the cell that we must expect to find the bridge which connects mind and matter—if any such bridge exists! Or, shall we rather expect to find that the terms matter and mind are but names that conceal some fundamental verity and unity which contains no chasm that needs bridging! Just as the ideas of matter and motion are reducible to the conception of energy, so the ideas of structure and environment as connected with our ideas of mentation may ultimately be reduced to some form of unity.

These conceptions may lead us to a better understanding of the relation of cellular psychology to all forms of higher psychological investigation. When a man withdraws his hand from a too close contact with a hot stove he does nothing different in *kind* from that of the activity of a cell that moves away from a heated needle or a chemical irritant. When a man seeks food he does nothing different in *kind* from that of an unicellular organism seeking nutriment.

It is in the activities of the cells of the human organism that we are to find a solution of the mysteries of the activities of that organism, and the highly specialized cells of the animal body can best be understood by first studying the activities of isolated unicellular organisms. The study of these one-celled creatures is reduced primarily to a study of automatic metabolism in reaction with cosmos, and the three methods of investigation which have been described open new domains of research in cellular psychology.

*A fourth method of research in cellular psychology.*

The fourth method of research in cellular psychology is a modification of the third. It consists in experimentally regulating the activities of cellular organisms in such a manner that in a given species of cells one group shall be subjected to a persistent repetition of some one activity while another group shall not be compell-

ed to use that particular activity any more frequently than before, and during these experiments to maintain a constant environmental condition in all other respects for both groups, and to continue the same conditions of environment and excessive activity of one group for many generations. The group subjected to excessive activity of one faculty is allowed to continue without killing off those which do not respond to the stimulus with equal readiness. That is, survival of the fittest is not allowed to play any part with reference to this one activity—those cells which do not respond well are allowed to live just as freely as those which by favorable variation respond most readily, and as far as possible, select for the continuation of the propagation of the group under training those which by variation respond least readily to the particular stimulus. Under these conditions those which respond least readily to the stimulus are not killed off in the struggle for existence as in Nature, and hence the Darwinian factor is excluded. If under these conditions there is a ready growth of those cellular structures which are concerned in that particular kind of functional activity, and if this characteristic increases, generation after generation, even when the favorable variations are destroyed each generation, then we must conclude that acquired characters are transmitted. My experiments lead me to conclude that *acquired characters are transmitted*, and that it is *mental activity which produces an acquired character*. This method is applicable to metazoa as well as to protozoa—to monkeys and men as well as to monera. It seems to me that this is the first experimental method which directly approaches the problem which is at present giving the neo-Darwinians some trouble.

A unicellular organism that produces its kind by simple subdivision transmits to its descendants all of its characteristics, and if it acquires any characteristic during its lifetime it must of mechanical ne-

cessity transmit that acquired character to its offspring. Now, as a matter of experiment, such a cell can be caused to acquire a staining, which staining will be transmitted to its offspring. So far we have a very simple case of transmission of acquired character. If we steal from the cell a portion of its cytoplasm the offspring will be smaller than otherwise; and if we subject the cell to intense cold, but not enough to kill it, its offspring will partake of the acquired lethargy and will not, after getting warmed, grow as rapidly as some "control" cells which have not been cooled. It seems to me that even in these simple cases we have some direct hints of the method and possibility of the transmission of acquired characters. But the new method of research, just described as the fourth, seems to supply all the test conditions for the settling of this important problem. The basis of the transmission of acquired characters is automatic metabolism, and the cause of such an acquisition is mental activity. The fact that mentation is a causatory factor in organic progress does not remove from organic evolution the effect of favorable variations and their preservation in the struggle for existence, but emphasizes its importance in the lower orders of life and minimizes it the higher the degree of mind-embodiment. The higher the animal the more it comes under the influence of the transmission of acquired characters; and the advent of the possibility to directly make more brains and more mind by an art of brain-building would at once give the human race a new mode of progress; and the power of using the mind scientifically in systematic mentation would systematize the transmission of acquired characters and lay the basis for an art of eugenics.

The conclusions to be derived from this fourth method of research corroborate the former statements as to the importance of a knowledge of cellular psychology.

*All cells feed from a liquid medium.*

Cells must be fed from a liquid medium.

This is true not only of all unicellular organisms, but also of cells in the animal body. In the later case, the surfaces of the cells must be exposed to a fluid, such as the blood, carrying nutrient material. In the animal organism blood-vessels permeate the masses of cells and carry this nutrient fluid to their cellular surfaces. The greater the activity of a cell the more food will it need and the more waste products will there be, hence vasculature of an organ is an indication of the relative amount of metabolism in an organ. Those parts of the human brain which are most used are most vascular, and those parts which are not so much used contain a relatively smaller amount of blood and lymph channels. Sending more blood to a part will not necessarily cause that part to grow—there must be *cellular activity* in that part, that is, metabolism, that is, mentation, to cause the cells to need food before increase of blood to the part will cause growth. Hence the whole vasomotor and nutrient system is a modification of the metabolic process. Each cell selects from the blood what it needs and rejects what it does not need—it adjusts acts to ends—it mentates, and this mentation is ever accompanied by metabolism and metabolism is ever accompanied by mentation. It follows that severe mental labor should be carried on only when good blood can be supplied to the brain cells, and it follows also that increased activity in any group of cells will be followed by increased flow of blood to those parts, and if this habit is kept up regularly there will be a habit of activity and blood-flow established in those parts, rendering that class of functionings more intense and efficient. A dominancy can thus be artificially created, and when such a dominancy comprises a definite kind of memory-activities a *personality-dominancy* results, and a certain kind of character arises which differs morally and intellectually and conatively according to the classes of activities which have been rendered dominantly and systematically

active by the teacher who has essayed to build a character in a pupil according to a pre-established plan of mental or cerebral dominancies. This art of character-building will be elsewhere described and from another standpoint, and it will include the curing of abnormal affective and emotive states.

When an evil class of memories of an intellectual, emotive and conative kind have become by experience dominantly active in a child it may be said to have an immoral or criminal disposition. Certain portions of its brain are active whenever these evil propensities are in the child's consciousness, and growth is then taking place in those parts. Its personality is characterized by that series of dominant memories. Now if the teacher who has learned the art proceeds systematically to register in those same parts of the brain the same classes of memories but of a pleasurable and moral kind, and keeps those morally-functioning activities in action a greater number of times per day than the evil memories can functionate, and keeps on enregistering new evil memories of that class until the morally-functioning memories far exceed in number the evilly functioning memories of the criminal dominancy, and if the teacher integrates these new and normal memories and keeps them periodically active a greater number of times per day than the evil memories are active, then growth takes place in those parts of the cells and in the those parts of the brain where the desirable functioning occurs, and the most blood goes habitually to those new parts, and by and by the old criminal dominancy is no longer dominant—the new dominancy sways consciousness and motive, and the old dominancy atrophies, and the child has its character physiologically and psychologically re-made by its own mentations, creating new mind-structures! I have mentioned the curing of immoralities and criminal propensities in this place to emphasize the fact that the seat and basis of

the change is in cell-substances, and that metabolism must be modified by mentative activity in order to cure an immoral dominancy or a criminal tendency; and to emphasize the fact that these brain-building processes are dependent upon the mentation, and that the mentation builds structures by regulating and varying cell-nutrition, which is metabolism. The importance of a knowledge of cellular psychology is again impressed upon us by these facts.

*Cell specialization a mental phenomena.*

Whenever any one of the activities of a cell becomes specialized the other activities are gradually lost—the accentuation of any one capacity of the cell diminishes all other capacities of the cell not needed to carry on that specialized function. A cell that has been specialized is said to be physiologically unbalanced and requires the co-operation of cells in which all of the other functions have been specialized. The older doctrine is, that by variation and survival of the fittest the specialization took place in the cell—those capacities not needed were dropped, and those which were useful were perpetuated. Now, it is significant that only those functions which had to be *used* were perpetuated, and is proven by the fourth method of research, that excessive use of any of the functions of a cell causes excessive nutrition of those parts by means of an excess of metabolism and hence an excess of that kind of structure. Cellular specialization is thus also brought about by differentiation of the mentative activities of the cell, and not alone by variation and survival of the fittest. Hence, to understand that wonderful system of specialized cells which constitute the animal body we must become acquainted with the psychology of the cell.

In the ontogenetic development of the vertebrate animal the cells formed by the segmentation of the fertilized ovum separate into two layers, the ectoderm and entoderm, and a little later into a third layer, the mesoderm. From the ectoderm,

or outer layer, as might be anticipated, arises during later development, the skin and nervous system; and from the inner layer, or entoderm, arises the alimentary tract; and from the middle layer, or mesoderm, arises the muscles, reproductive apparatus and circulatory system. The first subdivision of cellular activity in the specialization of cell-function, as indicated by this ontogenic history, is into nervous (ectoderm) and nutritive (entoderm) activities. The cell, first, is dominantly nutritive, then by the contacts with the stimuli of its environment its surface becomes not only a protective membrane, but is specialized in those parts to respond to stimuli. The cells which thus become dominantly nervous lose their other dominancies; and the cells which become dominantly nutritive lose their other capacities; hence another group of cells must become dominantly motile and reproductive. In all of these cell-specializations the metabolism of the nucleus is primarily concerned. Hence, to understand the functions of the organs and ganglia of the animal body, we must resort to a study of psychology of the cells which compose those organs.

This accentuation of some *one* of the functions of a cell to the detriment of the other functions of that cell is of highest import to the art of education and brain-building. It shows, in the first place, that in the cell there is a diverse series of capacities or faculties, and that consequently there must be an equally complex series of cellular structures—for functions do not exist apart from structures. It shows that excessive activity of any one of these functions produces excessive growth of the corresponding structures, and it does this by differently distributing the metabolism of the cell.

My experiments upon the higher animals have demonstrated that a variation of mental activity in some one kind of mental functioning produces a variation of structure and chemical constitution in some groups of brain-cells. Rabbits con-

fined in a room with only green light exhibited an occipital cortex containing brain-cells that stained differently with the same reagent (an iodide of rhodopsin) than the cortical cells from rabbits confined in a room with red light. In these cases the difference in the seeing-activities did not bring into play different classes of cells but different parts of the same cells.

Hence, mental activities are localized within the cells as well as within the cortex—there must be a topography of localized functions in the cell as well as in the cortex as a whole.

Perhaps few men have brain-cells of any one class as fully developed as they might be.

My future experiments, will, I hope, give me accurate data for the construction of a topography of functional localizations within the cell, not only of unicellular organisms but in the cells of metazoan organs.

I have now briefly described four new methods of research in cellular metabolism and cellular psychology, and the purpose of this paper has been accomplished if I have made plain that there is a cellular psychology and that it is of fundamental importance to the understanding of the psychology of complex groups of cells, such as those in the animal organism, and that there are four new and definite methods of scientific research in this domain which promise richest results to the competent investigator.

Special laboratories and apparatus are needed for the prosecution of these four lines of investigation. These researches have many practical bearings upon bacteriological, pathological, and medical studies.

These four methods of research are subdivisions of some of the six general new methods of psychological research which I have elsewhere described.

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## EXOPHTHALMIC GOITRE TREATED WITH NUCLEIN SOLUTION.

By JOHN E. BACON, M.D.

Miss M. C., aged 16, farmer's daughter, American.

Family history:—Mother aged 55, health good, no previous illness. Father aged 56, health good, no previous illness except rheumatism occasionally. Two sisters and one brother, all older, all healthy. One own cousin and one second cousin affected with ordinary goitre. No other history of similar disease on either side of the family.

Personal history:—Patient had inflammation of the bowels and whooping cough when a young child; no other serious illness, but was never strong; menstruated at thirteen and was regular up to July 1894, when the menses were suddenly and completely suppressed. In February, 1894, while attending school the patient began to be extremely nervous and was affected by involuntary twitchings of the muscles of the arms and legs, this became so marked that the patient was taken from school. In the following July the neck began to enlarge, and the eyeballs became prominent.

She was treated at various times and places without improvement until the following February, when the writer first saw the case.

Examination, Feb. 1st, 1895. Patient is a slight, thin young woman, weight 96 lbs., face flushed and lips parted, eyeballs very prominent, Graefe's sign absent, sight unimpaired, and a fine, very distinct tremor especially noticed when she attempts to write. There is a general enlargement of the thyroid body to at least six times its usual size, showing very marked pulsation. On auscultation there is heard a soft blowing murmur, systolic in time, over the entire left chest; this is transmitted to the tumor in the neck and is associated with the usual venous hum in the large veins of the neck. The pulse-

rate is 150 per minute, respiration 40. Her tissues are all relaxed to a very marked degree, the muscles seeming hardly able to contract, and luxations of nearly all the joints, especially of the knees, are quite common, but are readily replaced by the patient or her mother, and occasion little or no pain.

Symptoms:—Added to the signs above recorded the patient is so nervous that she can hardly remain quiet for a single minute at a time; she has a very poor appetite and is very constipated. She is annoyed and worn out by an aggravated insomnia, rarely sleeping more than a few minutes at a time. She can hardly support herself to walk, and the bodily strength is practically *nil*. There is no lesion of the nasal passages or throat.

*Treatment*:—The case was faithfully treated by diet, and on the lines laid down in the text-books, iron, arsenic, digitalis, veratrum and opium being used in various doses and combinations, for two months, without the slightest benefit being obtained. On March 29th, 1895, nuclein solution in the form of tablets (each  $\frac{1}{3}$  minim) was prescribed; she took three a day at first, gradually increasing until at the end of two weeks six a day were taken, and marked signs of benefit encouraged the continuance of the remedy. In addition she took for about two weeks a dose of sulphonal, gr. x, at seven P. M., and this acted admirably, securing several hours good rest each night. This constituted the whole treatment until August 16th, when the condition of the patient was as follows:—"The menses reappeared in August in a natural manner, the pulsating thyroid is reduced at least one-half and the pulsations are weaker, evidently less blood is going through the gland. Pulse-rate 100 per minute, full, strong, and regular; respiration 19 per minute. Hemic murmur is confined to the precordia, and less distinct. Eyeballs much less prominent and nervousness much improved, writes without tremor, though the tremor is still present to some

degree. She sleeps and eats well, and has gained quite perceptibly in weight and strength."

Nuclein was continued by giving four tablets a day until October 1st, when her condition was as follows:—"Menses still more normal in time and quantity, eye-balls nearly normal, only slight exophthalmos persists, pulse-rate 80 per minute, respiration normal, inurmur has nearly disappeared and can with difficulty be heard at all and then over the base of the heart; pulsation in the thyroid has disappeared, slight thickening persists which has a fibroid feel. Patient eats and sleeps well, tissues are firm, strength has largely returned, weight 110 lbs.; she has returned to school and walks three miles a day in so doing, and is gaining in every way steadily." The cure appears to be complete, and is evidently due to the faithful course of treatment with the nuclein.

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#### *TREATMENT OF DIPHTHERIA IN THE BOSTON CITY HOSPITAL AND THE WILLARD-PARKER HOSPITAL OF NEW YORK.\**

By S. G. DABNEY, M.D.,

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Perhaps it would be interesting to the members of the Society, if I were to relate a few observations made in two hospitals a few weeks since, where they have a very large experience in the treatment of diphtheria. During the past summer I had the pleasure of visiting the Boston City Hospital, and the Willard-Parker Hospital of New York. I paid especial attention to the diphtheria wards in both places, and found a great deal of interest. The first thing that impressed me was the fact that there was some difficulty in getting into the diphtheria wards. In Boston particularly it was against the rules of the

hospital for anyone to be permitted to go into the diphtheria ward, and it was only through the courtesy of one of the gentlemen of the staff with whom I was acquainted that I was allowed to enter. Another thing which is a little different from the custom here, was, that you are required before going into the diphtheria ward to put on a long gown covering the vest and a greater part of the pants, going down a little below the knees. And as soon as you come out of the ward you are expected to bathe your hands carefully in an antiseptic solution.

Antitoxine was used there as a routine measure, and I may say that it is not only used as a curative agent, in the Boston City Hospital, but also for prophylactic purposes. The same is true in the Children's Hospital of Boston. Dr. Buckingham seemed very much encouraged at the results. They do not use the Koch syringe to administer the antitoxine, but they use an ordinary little piston syringe with a needle attached to it by a piece of soft rubber tubing. The method of injection is the same as we use here; they inject into the thigh oftener than anywhere else, covering the wound afterwards with a little iodoform and collodion as an antiseptic dressing.

I asked the surgeon in charge what their especial point of diagnosis was, and he said their chief point was the presence of the Klebs-Loeffler bacillus. I noticed that the chart they keep for all their patients had a separate line headed "K-L" for the purpose of showing when the Klebs-Loeffler bacillus was present and when it disappeared.

In regard to the internal treatment: I found both in Boston and New York that they were using chiefly strychnine, and some whiskey. They do not use much iron.

The local treatment seemed to be chiefly irrigation. I noticed this particularly in New York. The child was laid on its side, and the throat washed out with a simple solution, a little salt and water, or

\* Reported to the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.

soda and water. They were not put through any process of mopping or spraying, but the child's throat was simply washed out by running water into it from a fountain syringe, the child lying on the bed with a little tube in the throat, allowing the salt water to run in and out. The nose was also irrigated in the same manner.

I asked them how they determined the time when the patient could be discharged safely; they said by the absence of the Klebs-Loeffler bacillus; but they did not trust to one examination only, they sometimes made three and always two examinations, usually on alternate days.

Their mortality impressed me as being quite large. If I remember correctly, in both New York and Boston, even under the antitoxine treatment, the mortality was fifteen per cent., or more, which seems to me as large as we have had in Louisville previous to the introduction of antitoxine. I suppose the diphtheria they have there is of more severe type.

In the New York Hospital (Willard-Parker) most of the precautions, treatment, etc., are the same. There, however, they do not require you to put on an apron before going into the ward, but you can do so if you like. In the same way they give you an opportunity to disinfect your hands after coming out.

I was particularly anxious to meet Dr. Winters, and went to his office, but unfortunately did not have the pleasure of making his acquaintance. He is well-known as the chief opponent to the treatment in New York. Notwithstanding Dr. Winters, antitoxine is being used as a routine treatment there.

A word about the selection of material. Dr. Buckingham told me in Boston that they had found certain American antitoxine was far more apt to be followed by eruptions, fever, etc., than the imported antitoxine. They had observed no phenomena of this kind until their supply of imported antitoxine was exhausted and they used some made in New York City.

They regarded that manufactured by Behring as the best.

At the Willard-Parker Hospital in New York they do not seem to lay so much stress upon this feature. They are using their own antitoxine, made by the New York Board of Health—the Willard-Parker being managed, as you probably know, by the Board of Health.

There are several points that seem to me very clearly defined in both Institutions:

1. Their chief diagnostic point is the presence of the Klebs-Loeffler bacillus.
2. In discharging their patients they are guided by the absence of the Klebs-Loeffler bacillus, making at least two examinations to determine its absence.
3. Irrigation rather than spraying or gargling is the chief local treatment, using some simple solution for both the throat and nose.
4. The use of whiskey and strychnine internally, leaving off iron and most of the other remedies.

#### DISCUSSION.

Dr. Florence Brandeis:—While recently in Vienna I saw antitoxine used in a great many cases of diphtheria, at the Polyclinic Hospital and also at Widerhofer's Children's Hospital. As a rule they use Behring's solution, but when that is not obtainable they substitute an antitoxine prepared in Vienna.

I noticed that the injection was always made into the subcutaneous tissue of the abdominal walls, and as in Boston the puncture wound was sealed with iodoform and collodion, then a simple antiseptic dressing applied. This is the routine treatment, and they never wait for a bacteriological examination.

Constitutional treatment is only employed as indicated. Instead of whiskey they use red wine. Irrigation is not used.

Whereas their mortality was formerly as high as fifty per cent., under the antitoxine treatment it has been reduced to sixteen per cent.



Dr. J. M. Ray :—I was in New York during the spring when the antitoxine craze was in its height ; was through the Willard-Parker Hospital at that time. I did not see Dr. Winters, but understood that the famous antitoxine discussion was to come up in the Academy soon, and I was urged to remain to hear it. You are all familiar with that discussion. Irrigation with normal salt solution was being used quite extensively. Dr. Dillon Brown is very enthusiastic in regard to the sublimation of calomel. Dr. Brown believes this method of treatment is especially useful in the laryngeal cases. The child is put under a tent, and calomel is than burned, and the child allowed to remain there for some time. He claims that he has increased his percentage of recoveries by this treatment, after intubation, from 28.2 to 39.9 per cent. He had tabulated his cases before introduction of the sublimation treatment, and since he commenced using calomel in this manner, with a percentage in favor of the sublimation of eight to twelve per cent.

I saw a number of injections in New York, and their method was the same as ours. The best syringe I have found is that with an asbestos packing; I regard it as much superior to the Koch syringe. It can be put in boiling water and rendered perfectly sterile. I usually make my injection in the thigh or between the shoulder blades, and have never had any local reaction from the injection.

Dr. T. C. Evans:—I have tried both the Koch and the Ermold syringe, and prefer the latter for several reasons. It is made like an ordinary piston syringe, the packing being made of asbestos, which can easily be sterilized before using. The Koch syringe is easily broken if the child is at all unmanageable, and I believe they are all unmanageable to a certain extent when you attempt to introduce a large hypodermatic needle.

The only experience I have had with the antitoxine has been with Behring's solution. I have never tried American

makes, from the simple fact that I have always gotten very good results from Behring's.

I think in many cases it is bad policy to wait for a bacteriological diagnosis as we lose valuable time.

Dr. J. B. Marvin:—One or two points brought out by Dr. Dabney's remarks might be emphasized. As to the antitoxine treatment, certainly from statistics, if they prove anything, the indications are that antitoxine is the remedy *par excellence* for diphtheria. I recently read a lengthy article in which the author tabulated all cases so far reported, showing an enormous reduction in the mortality.

In regard to administering antitoxine, *i. e.* the point of injection: Dr. Dabney spoke of the thigh, and Dr. Brandeis mentioned the abdomen. When I was last abroad, I visited the Pasteur Institute, and never saw an injection of antirabic serum there made at any point except in the tissues of the groin. I have made them in the back, the arm, etc., but abroad the usual site seems to be the groin.

The syringe that I use I had made by the noted German instrument maker, Windler. It is composed of simply three parts, one piece of glass tubing, a large calibre needle, and the piston which is made of asbestos. It can readily be taken to pieces and may be sterilized by boiling, or the asbestos piston may be put in the fire and burned until sterile.

There is very much to be said in favor of the calomel treatment, and I would not think of treating a case of follicular tonsillitis or diphtheria without giving calomel. I do not believe it is a specific, but it is deserving of further consideration as an internal remedy. I always rely upon it, given in powder dry on the tongue, or in tablet triturate form.

I thoroughly believe in the efficacy of irrigation as outlined by Dr. Dabney, and I have never seen any trouble whatever in carrying it out. This is a point that I have fought frequently. I am opposed to spraying or mopping the throat of the

child; I believe it does more harm than good. Irrigation may be practiced very effectually by having the child laid upon its side, with the head slightly lower than the body. The water may then be made to run in and out, and I believe a greater part of the pharynx may be reached in this manner. I usually employ a simple salt solution, sometimes salicylate or benzoate of soda, irrigating the nose as well as the throat.

Everybody with any experience in treating diphtheria must have had cases die from cardiac failure or something of that kind. And just here, I want to call attention to an important point, that is strychnine. I have put aside everything else in the way of a general cardiac tonic and stimulant in favor of strychnine. I sometimes use camphor. I have taken the rather ultra ground that digitalis is a vastly overestimated agent. It is of value only in cases of valvular disease, and then only in certain stages. In a heart not crippled by valvular disease, strychnine is of far more benefit as a tonic agent on the striped and unstriped muscular fibre. Strychnine to the child is extremely bitter, and almost all of them refuse to swallow it. I have been in the habit of getting it put up in little gelatine coated pellets so that the small child can swallow it. This is the only way of giving it internally in my opinion. I do not like to give strychnine internally, preferring the hypodermatic injection, and I give it in large doses, pushing it, and I have yet to see any bad results. I have given  $\frac{1}{10}$  of a grain three times a day to the adult, and to the child  $\frac{1}{100}$  of a grain. I have frequently given  $\frac{1}{3}$  of a grain in twelve hours, three doses in all, and the only bad effect I have ever observed is that the patient seemed to be made a little restless at night.

I think the point mentioned by Dr. Brandeis is worthy of consideration, that red wine is a good substitute for whiskey. I think the Vienna schools teach that we should give red wine in typhoid fever, diphtheria, etc., as a substitute for whiskey.

The red wine they get abroad, however, is better than we are able to obtain here.

I agree with Dr. Dabney that iron is not the agent required in diphtheria. I am glad to see that physicians are getting out of the old-fashioned way of treating diphtheria. The old idea was that we must administer large doses of iron and chlorate of potassium. Diphtheria is a question of a short time only as far as the primary disease is concerned, and iron does not act quickly. I use iron locally in laryngeal affections; the formula is, subsulphate of iron, glycerin and carbolic acid applied to the part with a cotton mop. This may be useful in some cases as an astringent and antiseptic.

Dr. Dabney:—If I am not mistaken Dr. Dillon Brown's conclusions in regard to the calomel treatment were much more favorable than stated by Dr. Ray. In his opinion it is equal to antitoxine in the laryngeal cases. His enthusiasm is greater in regard to the sublimation treatment than that of any one else I have heard speak of it.

Dr. J. N. Bloom:—What are the grounds for opposition to antitoxine? From reports it would seem that in some cases bad results have followed its administration.

Dr. S. G. Dabney:—Dr. Lennox Browne, the London Throat Specialist, claims that it increases the percentage of kidney poisoning. Another point is, that in very many cases the serum used has been impure, perhaps taken from horses unsuitable; or there may have been some fault in its manufacture. It seems to have occasionally caused some involvement of the joints, and in other cases an eruption. I saw several cases of marked eruption in the Hospitals. I have seen one in my own practice, the eruption coming on a week after injection of antitoxine, whether caused by the antitoxine or not, I do not know. I do not believe there are any other grounds for opposition.

Dr. Louis Frank:—What value do they place upon the bacteriologic examination of secretions from the throat?

Dr. S. G. Dabney:—Dr. Buckingham compared it to the "finding of albumen in the urine in Bright's Disease." Individually he did not believe that the finding of the Klebs-Löffler bacillus in the throat was proof positive of diphtheria, but the *repeated finding* of this organism he regarded as sufficient proof when taken in connection with even very slight clinical manifestations.

I was perhaps misunderstood upon one point: I did not mean to say that they waited in the East to give an injection of antitoxine until an examination by the microscope has been made. I do not think they wait for this. I certainly do not in any case that has the appearance of diphtheria. I give antitoxine before hearing the result of a microscopical examination. It is important to give antitoxine as soon as possible in these cases.

In the East they laid great stress upon ceasing to find the Klebs-Löffler bacillus, not relying on one examination only but making two or three, before discharging a patient from the Hospital. I understand that their microscopical examinations are made with cultures.

### PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M. D.

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#### EXPERIMENTAL CONTRIBUTION TO THE PHYSIOLOGY OF THE THYROID.

N. Dedominices (*University Medical Magazine*) says:

1. Thyroidectomy, when total, brings on, in from two to four days, rarely later, certain dystrophic and serious nervous phenomena, that almost invariably cause the death of the animal.

2. The cases in which these effects fail to be produced, are very exceptional, and the true reason for them is not yet surely known. We may admit a vicarious development of succenturiate thyroids,

but it cannot be denied that there may be other modes of compensation as yet unknown to us; and this seems absolutely so suggested by certain results of the experiments.

3. The morbid condition to which thyroidectomy gives rise is due to a direct autoxidation, which affects, principally, the central nervous system. The thyroid seems to have the function of neutralizing certain toxic products that are continually circulating in the blood, which gradually accumulate in the system, producing serious fatal effects without the intervention of the thyroid secretion.

4. There is absolutely no connection between the function of the thyroid and that of the spleen.

5. The implantation of the thyroid in another part of the body, if successfully done, never fails to prevent the fearful and fatal effects of thyroidectomy. This is very different to what happens when a successful attempt is made to transplant the pancreas.—(*Maryland Med. Journal*, Sept. 21, 1895.)

The author's meaning with regard to the fourth conclusion is not quite clear to us. If he means that the functions of the thyroid and spleen are not dependent upon each other, we can agree with him; but, insofar as the secreting power is concerned, both give rise, through the selective affinity of their cells, to nuclein. This latter is manufactured from the thyroid according to Dr. Aulde's method; and from the spleen according to Dr. Vaughan.

In connection with the foregoing, it is somewhat *apropos* to remark the change the physiological text-books are undergoing—Kirke, for instance, in his edition of 1892, dismisses nuclein with, one might say, a breath. Now, (edition of 1895), he puts the word in heavy-face type, and gives it some of the importance due.

#### THE SPLEEN—ITS METABOLISM.

Among the functions of the spleen, there is a special nitrogenous metabolism, which may be inferred, say some physi-

ologists, from the almost constant presence of uric acid, in larger quantities than in other organs, as well as of the nitrogenous bodies, xanthin, hypoxanthin and leucin. Authorities do not state of what this special nitrogenous metabolism consists. A function of the spleen is the formation of white blood corpuscles. We know that these bodies give rise to nuclein, which contains the mother-substance of uric acid. The acid is formed when the antecedent substance is split up in the presence of an oxydizing agent, as fresh blood, dilute solution of hydrogen dioxide, etc.; but, in the absence of such an agent, the other xanthin substances mentioned are formed.

It is stated in physiologies that urea is the end product of nitrogenous oxidation, uric acid, an intermediate step; and that the former might be produced from the latter by further oxidation; but there is no evidence that uric acid is an antecedent of urea in the nitrogenous metabolism of the body. Further, we read that uric acid does not exist pre-formed in the blood as does urea, but that it is formed in the kidney. There, then is a contradiction, because we saw that it exists in larger amounts, larger than in other organs, in the spleen; but, from evidence, we can accept the spleen as its place of manufacture. Anything that will increase the number of colorless corpuscles increases the amount of uric acid, *e. g.*, in infants we find more colorless corpuscles than in adults, and uric acid is proportionately increased; meat diet increases the number of colorless corpuscles, and consequently, the formation of uric acid. Quinine lessens both. They are increased in leucocythaemia, acute febrile diseases, pernicious anemia, phosphorus poisoning, etc.

#### LEUCOMAINÉ POISONING.

In this symposium on the blood-elaborating glands, nuclein and its derivatives, uric acid, xanthin, etc., it may not be out of place to give space to an excerpt on Leucomaine Poisoning. Rachford, of Cin-

cinnati (*Medical Record*, June 22, 1895), says, this a very important phase of auto-intoxication, and it may manifest itself in at least three distinct, but closely allied clinical forms,—first, a true migraine or leucomaine headache; second, a migrainous or leucomaine epilepsy, and, third, a migrainous or leucomaine gastric neurosis. Paraxanthin is, by far, the most poisonous of all leucomaines. Both paraxanthin and xanthin are poisonous leucomaines of the uric acid group, capable of producing the most profound nervous symptoms. They are readily soluble in water, urine and blood. Paraxanthin is found in normal urine in such small quantities that its poisonous properties are lost in dilution. It is present in abnormally large quantity when it can be found in less than four litres of urine. Paraxanthin and xanthin are not formed in the kidney; they are excreted from the blood by the kidneys. The presence, therefore, of large or small quantities of xanthin bodies in the urine, means that these bodies were present in equal quantity in solution in the blood previous to their elimination by the kidneys. Migraine, which has heretofore been ascribed to uric acid and its many other causes, is perhaps the most common manifestation of leucomaine poisoning. In a case of migraine reported, paraxanthin has been found in two litres of urine during an attack, while between the attacks this substance could not be found. As characteristics of migrainous epilepsy, we have: 1. The sudden onset of the attack, as a rule, without warning. 2. Muscles rigid, but not convulsed. 3. Labored, gasping, irregular breathing. 4. Unconsciousness from beginning to end of the attack. 5. Heart's action rapid and strong. Examinations of the urine in an illustrative case, show clearly that during these epileptoid attacks the excretion of urea is very much decreased, and the excretion of uric acid vastly increased. Paraxanthin was found in four litres of the urine, in large proportion. The statement is made that uric acid itself, and its compounds

are not poisons. (*International Medical Magazine*, Sept., 1895.)

Taking into consideration the study made of the production by the spleen of nuclein and the circumstance that induces the formation of uric acid or of the xanthin bodies, we can readily understand the action of the microbes.

The statement that uric acid and its compounds are not poisons, lends color to the theory that their action in producing disease is purely mechanical.

With regard to the negative side of the uric acid causation of disease, Mann, of Buffalo, N. Y., in an article on the Relation of Lithaemia to Diseases of the Pelvic Organs in Women (*Annals of Gynaecology and Paediatrics*, June, 1895), says: An examination of the urine will give much information; usually, the quantity is below the normal; the reaction excessively acid, and uric acid is present in abnormally large quantities. At times the urine will be clear, limpid, and of low specific gravity. The blood also should be examined, for anemia is one of the most important associates or causes of excessive uric acid output. In cases presenting these combinations (menstrual disturbances, vaginal discharges, backaches and frontaches, troubles with the bladder and rectum, insomnia, dyspepsia, depression, a fear, at times, of insanity, headaches, especially occipital, and intercostal neuralgia), the question to be decided is whether the trouble is primarily with the uterus and ovaries, and all the rest reflex or secondary, or *vice versa*. It is possible to group such cases under the term lithaemic, or under the term uric acid diathesis; but the best plan is to consider them as cases of general disturbance of nutrition, and then we shall be forced to study each case to find out exactly the origin of disturbance. The pelvic lesions may be the cause, or they may be the result. We can get more help in understanding these cases by remembering the close relations existing between the circulations of the pelvis and the liver; also,

by remembering the dependence of the kidneys upon the proper performance of the functions of the stomach and liver; and again, by remembering the intimate nervous connection between the uterus and other organs. If the trouble starts in the stomach from an error in diet, or from overwork or nervous strain, there result imperfect metabolism of the food product, the formation of poisonous substances, the imperfect action of the skin, kidneys, liver and bowels, failure to excrete the toxins, and the production of an auto-intoxication resulting in nervous and functional disturbances.

#### TREATMENT OF CHLOROSIS.

Hayem (*Journal des Practiciens*, No. 17, 1895) lays great stress on the value of rest in the treatment of chlorosis. In severe cases, he advises absolute rest in bed. The rest not only lessens the destruction of red blood-corpuscles, but also checks a waste of iron, quiets the nervous system, improves digestion, relieves the neurasthenia, and in abolishing the corset, removes a frequent cause of dyspepsia. He believes that cures are less readily effected at home than in hospitals, on account of the rest which patients enjoy when treated at the latter institutions. It is necessary to relieve the dyspepsia before prescribing iron. At first, the diet should consist of milk and rare meat; later, eggs, fish, green vegetables and steamed fruits may be added. Bread is permitted only after the lapse of four or five weeks. In the way of drugs, the author prescribes either the carbonate or the oxalate of iron in pills, at the beginning of each meal, and hydrochloric acid a half-hour afterwards. (*University Medical Magazine*, October, 1895.)

The author strikes the keynote when he says it is necessary to relieve the dyspepsia before prescribing iron; especially is this true when the dyspepsia is due to hepatic inactivity. Says Dr. Aulde: "Unless the hepatic function is near the normal, but little benefit will follow its [iron]

use. Digestive ferments supply a temporary demand, by relieving the liver, or rather, performing in part the work of that organ; but they do not strike at the cause; rather, they partially overcome the effect of hepatic torpor. Purgatives aid materially by arresting the absorption of toxic substances. In addition to the employment of iron arsenite, there is a demand for hepatic stimulants like the bini-odide, along with antiseptics and blood tonics, such as creosote and quinine. Salines are invaluable, as they have an important influence upon the blood, increasing the alkalinity, by which its oxygen-carrying capacity is largely augmented. In addition, therefore, to the measures here recommended, oxygen inhalations are strongly advocated on alternate days. The iron arsenite should be given, a pill [gr.  $\frac{1}{12}$ ] every three hours until some symptoms of accumulation appear, when symptomatic treatment can be permitted to take its place for a time."

#### THE ACTION OF NORMAL AND ANTIDIPH- THERITIC SERUM ON THE HEALTHY ORGANISM.

Arlong (*Lyon Medical*, June 2, 1895) experimented on the action of the normal serum of a horse, and of antidiphtheritic serum, by making injections in healthy animals:—

*First Series.*—Three batches of eight healthy guinea-pigs each. The first batch was for control purposes. Subcutaneous injections of  $\frac{1}{2}$  ccm. of normal serum were given daily to the second and third batches, Dec. 13 to Jan. 15; from then to Feb. 22, 0.75 ccm. daily. On Feb. 22, the first batch had increased 34.28 per cent. of their initial weight, the second second batch 15.82 per cent., and the third, 19.07 per cent. This shows that normal serum had a prejudicial effect on nutrition.

*Second Series.*—Very young guinea-pigs were used with a view to their growing. The first batch consisted of two "control animals." Every day, the second batch of two animals was injected

with 0.75 ccm. of antidiphtheritic serum,—enough to render immune an animal more than fifty times their weight. After twelve days there was a slight difference in weight between the two batches in favor of the control animals, and during the whole time the experiment lasted (forty-five days) the first batch increased 50 per cent., the second only 44.5 per cent. Thus there was a sensible retardation of development in the animals which were injected with the antidiphtheritic serum. (*University Medical Magazine*, Oct., 1895.)

Of course, the loss of weight in the successful treatment of diphtheria is, in a number of instances, immaterial; although it might take from the patient the power to withstand the sequelæ. Yet, it is significant, showing that the injection of the serum indiscriminately is not without harmful features, and when the reports of the use of antitoxin are all in, they may prove that "all is not gold that glitters." The question still remains, Is Winter's globulicidal statement true? If not, what is the causation of the effects reported above?

#### THE DIRECT INFLUENCE OF SODIUM BICAR- BONATE ON THE GASTRIC SECRETION.

N. Reichmann, (*Therapeutische Monatshefte*, March, 1894, *British Medical Journal*, July 6, 1895, and *University Medical Magazine*, October, 1895), in view of the uncertain teaching as to the effects produced on the gastric mucous membrane by alkalis, investigated the matter methodically, choosing sodium bicarbonate on account of the extent to which it is generally used. The experiments were performed on human beings, the following five methods being employed: Patients drank before breakfast, during successive mornings, alternately 200 cubic centimetres of distilled water, and 200 cubic centimetres of a bicarbonate solution. After fifteen to thirty minutes, the gastric contents were aspirated; but neither small nor large doses appeared to influence the quantity of fluid secreted. The same experiment

was made in subjects who, however, were allowed shortly after drinking, to eat breakfast. Here again, the result was negative. In the next place, alkali was administered every morning during several weeks, but no appreciable effect was produced. On the other hand, when taken after food, the acidity of the gastric contents was diminished in proportion to the amount of bicarbonate taken. Again, this investigation, when extended over several weeks, produced no effect on gastric secretion. In conclusion, the author states that the examinations numbered 103; that the drug will act as an alkali even to a considerable extent, but that it in no way influences the secretory power of the stomach. Nevertheless, he admits the value of the drug which is capable of lessening acidity; and he states that the long-continued use of weak alkalies will no doubt produce a tonic effect on a weak gastric mucous membrane.

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### *DISEASES OF THE RESPIRATORY APPARATUS—THERAPEUTIC CONSIDERATIONS.*

By JOHN E. BACON, M. D.

#### BRUISES OF THE LUNGS.

Dr. John Parmenter (*Buffalo Med. Journal*, October, 1895), calls attention to the above subject in a very practical paper.

This subject has not received the same amount of attention in surgical literature that is accorded to similar injuries within the cranial and abdominal cavities, and for that reason has particular interest.

Dr. Parmenter points out the fact that cases are recorded in which extensive damage has followed blows upon the chest which left no injury to the chest-wall. Rupture of the lung, of the pleura, and even of the pericardium and heart have been so produced.

The mechanism by which these injuries are brought about has been variously

theorized and commented on, but the most rational explanation thus far is the one here set forth. We may consider the lung as virtually adherent to the chest-wall by virtue of the pleura, the layers of which are everywhere in intimate relation. If a blow impinges upon a point of the thoracic wall it depresses the same and successively the pleura and pulmonary tissue beneath. The remainder of the lung not being subjected to the same force does not follow, and the tension so produced results in a rupture or tear. Large contusions cause pronounced changes in the form of the lung and so separate the parts acted upon by the force and the parts normally adherent to the thoracic wall. Added to these considerations, as Gosselin points out, a person about to be struck involuntarily holds his breath, so converting the chest into a more or less solid body, and at the same time causing congestion of the delicate vessels of the lungs, which favors rupture and laceration.

Following Jobert, the author makes three degrees of bruises of the lung. First, the lung shows small hemorrhagic punctata, resulting from rupture of the capillaries, but the lung tissue is not torn. Second, beneath the healthy pleura the lung suffers small ruptures extending to the alveoli and bronchioles; from rupture of small bloodvessels small deposits of blood are scattered here and there. Third, this includes extensive tears of the lung, bronchi, and larger blood-vessels.

Bruises of the first and second degrees, the patient usually recovers from; if death does follow, it commonly results from inflammation following the original injury. Bruises of the third degree are very often rapidly fatal.

Conditions which may follow bruises of the lung, and which are prone to become serious, are: Hemothorax, pneumothorax, and emphysema. These are all caused in the same way by rupture of the pleura and the letting into the pleural cavity of blood or air, most commonly both, from

the ruptured blood-vessels and bronchioles. When the inner wall of the pleural cavity is ruptured, as well, emphysema is the result of the escape of air into the subcutaneous tissues. This last condition can be very dangerous, if it invades the mediastinal spaces and the pleura of the same side, by causing pressure so great as to interfere with the expansion of the lung on the sound side, and to embarrass the heart.

The symptoms are the same for all degrees, only differing in intensity; shock, great pain, dyspnea, increased frequency of respiration, each inspiration aggravating the pain, and bloody expectoration or sometimes pronounced hemoptysis, and the presence or absence of the above mentioned conditions.

The complications which may arise during the treatment of such cases are very serious ones, *viz.*, bronchitis or bronchopneumonia, usually appears early and may be very severe. Traumatic pneumonia, due to infection of the injured surface by the pneumococcus, appears on the third or fourth day without chill, runs an atypical course, may be mild or very severe, often ends fatally. Gangrene, slow in development, may be localized and recovered from, or may involve a whole lung. Pleurisy, most common of all complications, may be mild and run a typical course, or may, by infection, develop into a true empyema.

The author is inclined to believe that injuries of this nature may favor the subsequent development of phthisis, and there are good grounds for such a belief, inasmuch as the deposits of blood undergoing softening, and the areas of lung tissue suffering from altered nutrition consequent upon the injury, would afford a favorable soil for the lodgment and growth of the tubercle bacilli. He calls attention to seven cases reported by Mendelssohn, in which phthisis developed rapidly after such injuries.

The treatment of these cases must of necessity be largely symptomatic, and that

advised by Dr. Parmenter is here briefly set forth.

For shock, external heat and hypodermatic injections of brandy or ether, absolute rest in bed and prohibition of speaking. The writer has found strychnine sulphate, gr.  $\frac{1}{1000}$ , hypodermatically, most valuable in this condition and prefers it to alcoholic stimulants.

For pain, morphine, gr.  $\frac{1}{4}$ , hypodermatically, repeated on occasion, is the very best agent to use, for it quiets the heart, relieves tension, and insures quiet and easy respiration.

The most essential thing is absolute rest and quiet with supportive treatment in the way of equable temperature, predigested milk, with the raw white of egg, and if stimulation be required, strychnine in small and repeated doses. Enough morphine should be used to insure freedom from pain.

Special indications demand other and more energetic measures. Hemorrhage, continued and severe, should be treated by ice to the chest, moderate pressure, auto-transfusion by bandaging the extremities, position, and morphine. Ergot and drugs of that class are useless. If a great accumulation of blood should cause alarming symptoms, as severe and increasing dyspnea or cardiac embarrassment, it must be relieved by the abstraction of a part of the blood through a trocar and canula or by a medium-sized incision into the most prominent point of the swelling if such occur, then pressure by means of the antiseptic pack may prove useful. Distressing emphysema may be similarly relieved. But opening the chest widely in an endeavor to find and tie the bleeding point is very rarely justifiable.

In ordinary cases, not complicated by severe hemorrhage, the writer has employed adhesive straps over the entire affected side with great benefit and relief to the patient. The straps must be applied as for fracture of the ribs, with some firmness, and must envelope the entire side, each strap over-lapping the previous



one by half its width. This secures local rest to the parts immediately beneath the chest-wall and to a less extent to the whole lung, and supplies a firm support to the injured side, which is always very grateful to the patient. —

#### THE ETHMOID IN NASAL DISEASE.

Prof. W. E. McVey, of Topeka (*Kansas Med. Journal*, June, 1895), in a very practical paper points out some anatomical facts that serve to clear up the cause of certain cases that are always very unsatisfactory both to patient and physician.

The ethmoid bone contains two sets of cells in each lateral mass, the anterior and posterior, separated from each other by a thin but complete bony septum. These communicate with the nasal cavities by very small openings and are lined throughout by a continuation of the nasal mucous membranes. This membrane is supplied with glands and is subject to the same inflammatory changes. The anterior ethmoidal cells open into the middle meatus of the nose by a small canal known as the infundibulum, and the frontal cells communicate with the nasal cavities by the same route, and are often involved in inflammations of the anterior group of cells. The posterior ethmoidal cells open into the superior meatus of the nasal passage by a small canal. These canals are so small as to be easily occluded by even a moderate amount of swelling of the nasal membrane, as observed in an ordinary acute rhinitis, and hence the secretion is blocked in and accumulates as simple mucous; or if it has become infected by micro-organisms, as pus. The presence of the retained secretion is made manifest by pain, caused by pressure, and may be so severe as to be agonizing; it may be felt worst in the eye, from pressure upon the orbital plate of the ethmoid, or in the frontal region, or it may be diffused, and it obstinately resists all medical treatment.

It is the belief of the writer, that the condition just described occurs much more

frequently than has been supposed, and that upon a slight subsidence of the swelling, or from too great pressure, the collection often evacuates itself spontaneously, and if the collection happens to be uninfected this results in a cure. There is no reason why simple acute inflammations of the accessory sinuses of the nose should not occur frequently by extension of the process from the nose, and it probably does, but subsides with the coryza.

In all cases of obstinate headache and localized neuralgias a most thorough examination of the nasal cavities is imperative, and in cases where the middle turbinal is found to be enlarged and pushed across the space against the septum, ethmoid distension is to be suspected. If added to this appearance there is actual prominence of one eyeball, or if the patient complains that there is a great sense of pressure in the post-ocular region, with constant pain in that region, the condition may be definitely diagnosed.

Dr. McVey points out again what has been frequently observed, but is not generally understood, *i. e.*, that the middle turbinal, being really a part of the ethmoid bone, may contain an extension of the ethmoid cells, and that when these cells are distended the mass will give a bony resistance and touch to the examining probe.

The treatment of this condition is simply to afford a vent for the pent-up secretion or pus, as the case may be, and this is best done by removal of part or all of the middle turbinated bone. This may be done by means of the nasal saw or trephine, or by throwing the wire of the cold snare around the projecting portion and crushing it, and removing the pieces, or the rongeur forceps may be employed. In any case the cells must be thoroughly opened up and evacuated.

In case the discharged fluid is mucoid or blood alone, all the after-treatment that will be required will be a cleansing alkaline spray once or twice a day until the discharge ceases. If the discharge is

pus the cells must be irrigated by means of a specially devised canula to suit each case, and must be very carefully and persistently treated if a cure is to be had.

It occasionally happens that the anterior ethmoid cells and the maxillary antrum of the same side are coincidentally affected, and the diagnosis is thus rendered much more difficult. Trans-illumination by means of the electric lamp in the mouth is very satisfactory in the detection of antral involvement, and it may be positively stated that if there is a dark zone over the antrum reaching to the orbit, and if the pupillary reflex is absent on that side but present on the other, that there is *something*, pus, blood, mucous, or growth in that antrum, and an exploratory puncture through the outer nasal wall in the inferior meatus into the antrum is indicated. The puncture is best made by means of Krause's trocar and canula, or some modification thereof that will permit flushing the cavity with sterilized salt solution, which cleanses the cavity if infected, and if not, does no harm, and also opens up the ostium maxillare which is usually occluded.

Opening the antrum will sometimes cause the rapid disappearance of the ethmoid discharge, which is explained by the fact that the antrum wall bulged sufficiently to interfere with the infundibulum and so bring about ethmoid retention.

Prof. F. H. Bosworth, of New York, (*N. Y. Med. Journal*, October 12, 1895), reports a very serious case of melancholia caused by ethmoid disease with retention and pressure at the base of the brain in the frontal fossa of the skull. This case had been operated upon for variocoele, stricture, and the pudic artery had been tied. He had been cauterized the length of the spine and castrated. His eyes were first fitted with lenses for error of refraction and then operated upon for muscular defect. He had tried every known method of treatment that medicine and surgery could afford, all without effect, and was finally permanently relieved by removal

of the middle turbinal and evacuation of the ethmoid cells. This case developed subsequent to a severe attack of hay fever fifteen years before and had persisted up to the nasal operation. This interesting and withal pathetic history should emphasize the fact that the nasal examination must not be neglected when dealing with cases presenting symptoms which may be reflex in origin.

Prof. Bosworth also reported a case in which the ethmoid disease ultimately invaded the sphenoidal sinus and resulted in fatal abscess of the brain. This case was one of long standing, and at the time of examination great necrosis existed in the ethmoidal cell walls, which could not be satisfactorily cleared out, and shortly afterward the fatal abscess developed. These chronic cases of ethmoid disease usually start with an acute inflammation, as previously described, and retention ensuing, which is not relieved, the nutrition of the cell membranes suffers and the chronic purulent inflammation develops; the next step is necrosis, and it is but a question of time when the thin plate of bone intervening between these cells and the brain is attacked, and perforation closes the history of the case. The last mentioned case is instructive, inasmuch as it shows our inability to deal with the condition after it has reached that stage, and it should bring home the danger of delay when dealing with these acute cases.

149 Franklin St., Buffalo, N. Y.

**SUBSTANCES INCOMPATIBLE WITH ANTIPYRINE.**—According to the *Phar. Centralblatt* the following substances precipitate antipyrine from aqueous solution: (1) Phenic acid in concentrated solution; (2) tannin and tannic acid preparations; (3) tincture of iodine; (4) chlorides of mercury. The following decompose antipyrine when triturated with it in a dry state: (1) calomel, forming a toxic combination; (2) beta-naphthol; (3) chloral, which forms an oleaginous liquid; (4) bicarbonate of soda (an acetic ether odor is given off); (5) salicylate of soda, also forming an oleaginous liquid; (6) the salts of quinine and caffeine, of which the solubility is increased by antipyrine. *N. Y. Medical Record*.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - Editor.  
1338 WALNUT ST., PHILADELPHIA, PA.

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## Editorial.

### THE MEDICAL RELATIONS OF CELLULAR PSYCHOLOGY.

In order to determine the medical relations of cellular psychology it is necessary that we should become familiar with what may be termed the fundamental laws governing cell-life. To do this successfully we must study cell-function under various conditions. Thus we may vary the environment; we may vary the structure; or the activities may be varied. With appropriate apparatus and suitable facilities, the effect of change in environment, change in structure, or change in activities may be studied in unicellular organisms. Experiments of this nature, repeated again and again and always with the same results, must prove especially useful to the physician who is constantly engaged in studying the effects of disease upon cell-function.

While the results of physiological experiments are still fresh in our minds, we must not forget that physiological experiment does not undertake to deal with unicellular organisms, but with complex and complicated organisms. Physiological investigation has done much for rational medicine by showing the immediate

and direct dangers from indiscriminate drugging, but so far the most approved methods of treatment have scarcely influenced the mortality rates, unless we except the hospital records of diphtheria. In the case of pneumonia, for example, the death-rate varies but little from that which obtained fifty years ago; and it is now generally admitted that insanity is increasing more rapidly than in former years, according to the population. In view of these facts, how important it is that the physician should become familiar with the effect of change of environment, change of structure or change of activities upon cell-life and cell-function.

In this connection, we desire to direct special attention to the communication of Prof. GATES in the current issue, outlining the methods of research in cellular psychology. Prof. GATES has given the subject a vast amount of thought, and while his demonstrations show the wide range of utilities embraced in this study, the results of his pains-taking industry for the past twenty years prove conclusively that it appeals especially to the medical profession. Our author is about to undertake a new line of work with a view to elaborate the medical applications of these methods of research. Thus, in varying the environment of an unicellular organism he not only changes the temperature, diet, pressure, light, electrostatic potential, etc., but he also proposes to introduce into their pabulum different chemicals and medicines, such as aconite, strychnine, nuclein, etc., to determine their influence upon the activities (metabolisms) of the cells. Special attention will also be given to a study of effects of pathogenic organisms, such as the cholera bacillus. Proving, *a la* HAHNEMANN, will also be undertaken, *not*, however, upon people, but upon unicellular organisms.

By these methods, it should be observed, we shall learn more of the principles underlying cellular therapy, because they will shed a flood of light upon cell-function and cell-life. But this line of investiga-

tion, systematically carried out, will do much more for the medical practice of the future than is implied in this observation, since it will teach us how to vary the chemical environment, the cellular structure, the mentative—specific automatic metabolism—of pathogenic germs for the purpose of arresting and curing disease. But there are diseases which do not, so far as known, bear an etiological relation to micro-organisms, diseases which arise from various unknown causes, but always associated with, or dependent upon, abnormal cellular activities. Experimentation, to be of practical value, should be confined to a study of the activities of isolated cellular structures rather than to complex and complicated organisms. By this means we shall learn how to control the activities of cells in the animal body; in addition, we shall be in a fair way to understand how we ought to proceed where our object is to restore normal cell-functioning. We must not lose sight of the fact that the regulation of cell-metabolism in an organ or in an organism is of first importance. Cell-metabolism is always an important factor, but since cell-medication is usually directed to restoration of function, it naturally occupies second place. Hence, the importance of studying the fundamental principles governing cell-metabolism.

Notwithstanding all that has been said, in the preceding paragraphs, we have but touched upon the probabilities in the future of the cellular psychology; but we commend the subject to our readers as offering the best promise of success, since it turns into account so completely the possibilities of cell function.

### *THE QUICK LUNCH.*

"American dyspepsia" is a somewhat difficult disease to describe; but those who have familiarized themselves with the characteristic features of the "quick luncheon," as supplied to the business men and clerks in the commercial centres of large cities, can easily understand how

this malady is acquired. A patient observer with a statistical turn of mind has recently made a close calculation of the time given to eating at the larger city restaurants, and publishes the following data: For breakfast, 12 minutes and two seconds; for dinner, eleven minutes and forty-five seconds; and for supper, about eleven minutes. According to this observer, about one-half of the diners took coffee, and, strange to say, but very few took water. This latter is a pertinent observation, since it shows that a change has taken place in the matter of drinking at meal time. Hitherto, American dyspepsia has been charged to the reckless employment of ice-water with meals, and now it appears as if the laity had gradually been changing over to coffee. Unfortunately, this change must eventually lead to extremely bad results,—results which will manifest themselves through several generations. What with the quick lunch and the almost universal drinking of coffee, the outlook for the rising generation is poor indeed. Although the results from quick eating and the drinking of ice-water were bad enough, the later injection of coffee as a factor in disordering the digestive apparatus is sufficient to warrant the profession in calling a halt on the further continuance of this pernicious practice. Let the public know that danger lurks in the cup.

### *INFILTRATION ANESTHESIA.*

When BARTHOLOW first advised the deep injection of chloroform for the immediate relief and ultimate cure of sciatica, his critics were not slow to assert that the use of chloroform was unnecessary, inasmuch as the same effect would follow the employment of an equal quantity of cold water. These critics even claimed that they had accomplished satisfactory results, not only in sciatica but in various neuralgic affections; but they either did not "holler" long enough, or loud enough, to drown the reverberations of BARTHOLOW'S proclamation, and, as a consequence,

some one entirely outside of the controversy comes forward with the announcement, which not only explains the *modus operandi* by which relief from pain is secured, but explodes the original notion promulgated by BARTHOLOW that the chloroform had some specific action upon the terminal nerve filaments. Dr. MANLEY, of New York, almost stumbled upon SCHLEICH's method, in giving directions for the production of analgesia for minor surgical operations.

SCHLEICH's method of infiltration anesthesia consists essentially in distending the tissues in the area to be operated upon by the injection of a normal saline solution, to which it is recommended to add a small quantity of cocaine and also morphine. The analgesic action is prompt, and it is said that operations of considerable gravity can be performed without pain or suffering on the part of the patient, although he remains perfectly conscious throughout the trying ordeal.

Analgesia by infiltration has already been tested on this side of the Atlantic, and with satisfactory results. Perhaps the most commendable feature about the plan described is the absolute freedom from danger. The proportion of cocaine is but 1 to 1000, and the dose of morphine is comparatively small.

It would be interesting here to study the physiological basis of infiltration anesthesia, to study what influence the cocaine has upon the terminal filaments of the sensory nerves, to determine whether the effect of morphine is, as is usually taught—first upon the nerve-centres, then upon the nerve-trunk and lastly upon the terminal filaments. The salt solution, of course, exercises an important influence, but we must not overlook the fact that nature contributes something towards producing complete analgesia through the leucocytosis at once established just outside the area affected by the injection. As a matter of fact, nature would resent the injury produced by the introduction of the hypodermatic needle;

a congested condition of the tissues, favorable to analgesia, would present, and as a consequence cell-activity would be arrested or held in abeyance. Thus we are again reminded of the significance and fundamental importance of all scientific researches bearing upon the functions of the cells, not only in resisting disease processes, but that in so doing they not infrequently complement the action of remedial agents.

#### EDITORIAL NOTES.

ONE OF OUR FRIENDS in Louisville, who is concerned in the publication of a medical journal in that city, wrote us the following brief letter last month:

"Your November number just received, and I hasten to congratulate you upon remarks concerning 'stolen articles'; your comments are to the point and the provocation certainly warranted them. If other journals would take up the cue and score the guilty parties as you have done, it might work a revolution and result in our receiving credit for original thoughts."

Would it were so! We have exposed over a dozen thefts from our columns during the past year; but, so far as we know, not a single excuse or apology has been offered by the offending scribes, and the exposures have not deterred others from helping themselves. Too many medical journals are "run" for the advertising revenue, and are worthless in literary make-up.

A TIMID FRIEND of the AMERICAN THERAPIST asks: "Are you not afraid of arousing enmity and revengeful opposition by showing up the methods of these 'borrowing' editors?"

We no more care for the ill-will than we could value the favor of literary appropriators.

"Appropriators" is a nice word—like "prevaricators."

HERE IS ANOTHER.—The *Canadian Practitioner*, Nov., 1895, reprints from our October issue, page 124, a review of Serum Therapy—taken originally from the *British Medical Journal*—with comments, and, of course, forgets to give us credit. The task of noting and recording these purloinings is growing wearisome.

## Current Literature.

**ANTIBACTERICIDAL ACTION OF ACETANILID.**  
—An editorial in the *University Medical Magazine*, October, 1895, says, recent experiments would seem to indicate that acetanilid may be of service not only as an antipyretic and analgesic, but also as an antiseptic. Dr. FRANCES M. HARRELL first proved the efficacy of acetanilid in wounds difficult to heal on account of contamination with coal dust, etc. Since then, others have substituted it for iodoform. This clinical evidence has been recently confirmed by a series of laboratory experiments conducted by FROTHINGHAM and PRATT, of Yale University, (*American Journal of the Medical Sciences*, August, 1895). The pus-producing micrococci—*staphylococcus pyogenes*, *aureus* and *citreus*, and *bacillus pyocyaneus*—were selected for the experiments, and in every instance the inhibitory influence of acetanilid on the growth of the microorganisms was decidedly more marked than that of iodoform. A curious fact observed in the experiments was that in the tubes containing 1 per cent. of acetanilid, the inhibitory influence was more noticeable than in those containing 5 and 10 per cent. of the drug. Another series of experiments demonstrated that as a germicide, acetanilid was far less effective than as an antiseptic.

In the *Virginia Medical Monthly*, Febr., 1895, BROADNAX, of Louisiana, says he has used acetanilid ever since its introduction in malaria and as a surgical dressing for burns and the umbilical cord. He says: "It seems to act locally as an anæsthetic; is clean; seems to destroy the bad odor, and relieves pain."

The "curious fact" mentioned above, that a one per cent. solution of the drug acted better than a five and ten per cent. solution, goes to show that nature believes in physiological doses; evidenced further by the small amounts of digestive agents she allows at one time.

**PATHOGENESIS OF SIMPLE GASTRIC AND DUODENAL ULCERS.**—W. J. GREIG (*Canadian Practitioner*, Feb. 1895,) reports that both gastric and duodenal ulcers are peptic in origin,—that is, they are produced by the action of the gastric juice on the mucous membrane. There are other factors concerned in the production of these ulcers, however,—conditions which impair the integrity of the mucous membrane, and allow the gastric juice to work upon it. Among these conditions may be mentioned, traumas, occurring in patients whose resistance has been lowered by anæmia. A chronic condition of malnutrition of the mucous membrane, which is due to thrombosis rather than to embolism, is also an etiological factor. Hyperacidity of the gastric juice is as liable to be the result of, as the cause of this condition. Ulcers of the duodenum following burns, are septic in origin, and the result of the action of gastric juice on devitalized tissue. GREIG says that duodenal ulcers are proved to be of a peptic origin because they are never found below the biliary papilla where the alkaline bile neutralizes the acid gastric juice.

The alkalinity of the blood has been advanced as the reason for non-digestion of the healthy stomach, it neutralizing the acidity of the gastric juice. If so, why is not the healthy intestinal membrane acted upon by the pancreatic secretion? It has also been suggested that the epithelial cells are the saving power, but this has also been disproved. PAVY states "upon one occasion, after removing the mucous membrane, and exposing the muscular fibres over a space of about an inch and a half in diameter, the animal was allowed to live for ten days. It ate food every day, and seemed scarcely affected by the operation. Life was destroyed whilst digestion was being carried on, and the lesion in the stomach was found very nearly repaired; new matter had been deposited in the place of what had been removed, and the denuded spot had contracted to much less than its original dimensions."

With these two theories swept away, we must pin our faith to the anæmic condition stated by Greig, and also by Dættwyler, to be necessary before gastric juice can attack the stomach membrane.

**LACTOPHENIN: ANTIPYRETIC AND ANALGESIC.**

—In *Sajous' Annual* (1895) of the Universal Medical Sciences, Dr. Dujardin-Beaumez, editor of the department of Therapeutics (Vol. V, A, page 92), gives this estimate of the therapeutic availability of lactophenin:—This substance is allied to phenacetin both chemically and therapeutically. It is a crystalline powder, with a somewhat bitter taste, and is very slightly soluble in water. According to Landowski\*, who tried it in Proust's clinic, it acts precisely like phenacetin when both are given in 0.6 gramme ( $9\frac{1}{4}$  grains) doses, but 1 gramme ( $15\frac{1}{2}$  grains) of lactophenin produces a decided hypnotic effect. Von Jaksch,† who employed it in doses of from  $\frac{1}{2}$  to 1 gramme ( $7\frac{3}{4}$  to  $15\frac{1}{2}$  grains) in typhoid fever, found that it always rapidly reduced the temperature, and also that it exercised a calming effect when there was restlessness or delirium. Jaquet, of Basel,‡ employed it in pneumonia, erysipelas and influenza, and found it nearly always reduced the temperature rapidly and for some considerable time without any serious symptoms being produced; especially there was never any weakness of the heart's action or of respiration, nor any dyspnoea or collapse observed, and the pulse, as a rule, became fuller and slower, while the breathing remained unaffected. The great advantage of this drug appeared to be its calming hypnotic effect, together with its reduction of the fever. The hypnotic value of lactophenin, Jaquet estimates as intermediate between that of sulphonal and that of urethane. The usual dose employed by him was from 0.5 to 0.7 ( $7\frac{3}{4}$  to  $10\frac{3}{4}$  grains). H. Strauss§ tried the drug as an antipyretic in twenty-five cases, finding it preferable to any other on account of its harmless nature. In typhoid fever it seemed to have a special calmative effect on the nervous system. Roth¶ used it in several cases of acute rheumatism, finding it equal to the salicylates. The pain and swelling disappeared within twenty-four to forty-eight hours, the temperature continued low, and no unpleasant effects were observed, though large doses were given.

\* *Lancet*, London, April 21, 1894.

† *Centralblatt f. Gynecologie*, Leipzig, No. 14, '94.

‡ *Correspondenzblatt f. Schweizer Aerzte*, Basel, May, 1894.

§ *Therapeutische Monatshefte*, Berlin, Sept., '94.

¶ *Wiener klin. Wochenschrift*, Vienna, Sept., '94.

**Book Notices.**

**TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE:** Instituted 1874. Second Series, Vol. X., for 1893. Paper, 8 vo., pp. 686. Printed for the Academy, 1894.

The New York Academy of Medicine has always occupied a prominent position in medical circles both at home and abroad, and may be regarded as the exponent of the best methods of practice in the numerous departments or "sections" into which it is divided. The reader will be interested in knowing that it contains the following sections, each of which has its regular constituted officers and appointments: A section on the theory and practice of medicine, general surgery, genito-urinary surgery, orthopedic surgery, ophthalmology and otology, laryngology and rhinology, obstetrics and gynecology, pediatrics, neurology, public health and hygiene. During the forty-eight years of its existence this organization has had but twenty-three presidents, which speaks well for the friendly feeling between the members.

A cursory examination of the twenty-nine contributions in the present volume shows that they are all of a high order, contributed principally by members. Many of them have already appeared in the current issues of different medical periodicals, but in the present form they will be more conveniently referred to than when scattered through a dozen journals. Special attention should be called to the interesting and instructive contribution of Dr. Prentiss, of Washington, "Pilocarpine: Its Physiological Action and Therapeutic Uses, with exhibition of specimens showing change in the color of the hair." Additional contributions, likely to be of future interest, should also be mentioned, as follows: "Acquired immunity from certain infectious diseases. A result of heredity and natural selection," by Dr. S. West Roosevelt. Ozone and its uses in medicine, by Dr. William J. Morton. Therapeutic Reflections, by Dr. Simon

Baruch; and Modern Experimental Medicine, by Dr. William H. Thomson.

Besides the above named titles, the volume contains a number of valuable contributions relating to surgical topics, and on the whole must prove a notable addition to medical literature.

**THE PATHOLOGY AND SURGICAL TREATMENT OF TUMORS.** By N. Senn, M.D., Ph.D., L.L.D., Professor of Practice of Surgery and Clinical Surgery, Rush Medical College, etc. Illustrated. Cloth, 8 vo. pp. 709. Philadelphia: W. B. Saunders, 1895. (Sold by Subscription only. Price, \$6.00.)

The need for an authoritative work upon the pathology and surgical treatment of tumors is patent to the most superficial observer, and while the writer is well convinced of the thoroughly practical value of the present work, it must be evident that modern surgery is now in what may be called a transition stage. The elaborate work of Dr. Senn will doubtless be regarded by future generations as the dividing line between that which has gone before and that which is brought forth by the rising generation of surgeons or some succeeding generation.

In his preface our author makes an important observation upon the origin of tumors. He says, "The microbic origin of tumors is briefly disposed of, as it has not been established by any convincing experimental investigations or clinical observations." In the preceding paragraph (page 6, of the preface), we find the following statement: "The increase in volume caused by a tumor is due entirely to erratic cell-growth from a matrix of embryonal cells of congenital or post-natal origin; the enlargement of a part or an organ caused by chronic inflammation, which so often stimulates a tumor, is due to proliferation of pre-existing mature cells acted upon by pathogenic micro-organisms or their toxins, and to the vascular changes and cell-migration characteristic of inflammation; while a retention cyst essentially consists of an

accumulation of physiological secretion in a pre-formed glandular space, the result of a mechanical obstruction."

Special attention is directed to the above paragraphs in the belief that future biological studies will shed a flood of light upon the causes which underlie the formation of tumors, and for the additional reason that the growth of tumors is so closely related to cell-growth, a department of study which it would be well for our surgical brethren to investigate with care. But we have had so much to say upon the subject of cell-activity, cell-metabolism, the measures and methods to be adopted with a view to the restoration of cell-function, that it would not be politic to do more than mention in this connection the vast importance of such an investigation, not alone for surgery, but for medical science.

The work is subdivided into thirty chapters, every one of them bearing unmistakable evidences of careful study and mature deliberation, the different tumors being systematically classified and studied in detail. Perhaps one of the most instructive features of the work will be found in the illustrations, many of them being superior for the purpose of elucidating the text matter, and more than one hundred from original drawings, and great praise is due the publisher for the fidelity with which this portion of the work has been executed.

Turning to the index, the reader begins to realize, at least in part, the vast scope of the work, which is encyclopedic in character.

**PHYSICIANS' VISITING LIST FOR 1896.** (LINDSAY and BLAKISTON.) P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia.

This well known Visiting List presents several improvements in the new edition for 1896. More space has been allowed for writing the names and to the "Memoranda Page"; a column has been added for the "Amount" of the weekly visits, and a column for the "Ledger Page." To do this without increasing the bulk or price, the reading matter and memoranda pages have been rearranged and simplified. The lists for 75 patients and 100 patients will also have special memoranda page as above, and hereafter will come in two volumes only, dated January to June, and July to December. While this makes



a book better suited to the pocket, the chief advantage is that it does away with the risk of losing the accounts of a whole year should the book be mislaid.

The publishers announce that before making these changes they have personally consulted a number of physicians who have used the book for many years, and have taken into consideration many suggestions made in letters from all parts of this country.

No Visiting List has been used to such an extent or for so long a time as this. There is none better suited to the work of the general physician, in keeping easily and systematically his business accounts and memoranda.

### PAMPHLETS RECEIVED.

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Calomel.—A Study of Its Physiological Action and Therapy in Gastro-Intestinal Disorders in one hundred and forty-four cases. Is it a diuretic *per se*? By WILLIAM BLAIR STEWART, M.D., of Atlantic City, N. J. Reprint, 1895.

A Clinical Lecture on the Treatment of Chronic Glandular Gastritis. By FENTON B. TURCK, M.D., of Chicago. Reprint, 1895.

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## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATES.*

(FIFTH PAPER.)

By SAMUEL S. WALLIAN, A.M., M.D.

*Altitude*, in its relations to climate, has two distinct forms—that which rises abruptly into more or less elevated ridges called mountains, and that which rises gradually to moderate heights, and embraces wide areas, known either as plains, table-lands or plateaus. Various local names are also applied, as, steppes, llanos, mesas, etc. These latter names do not indicate comparative elevations or degrees of elevations, but merely levelness and extent.

There is a marked contrast between the two forms of altitude in their effects on climate. One interposes a barrier to air-currents, deflecting them from their original direction, and usually giving rise to counter currents. It also causes condensation of contained humidity, and rarefies, or lessens the specific gravity of the current.

As a rule all the continents gradually rise as they recede from the ocean, but to this rule there are some local exceptions. In the Old World these exceptions are the site of the Caspian Sea, the valley of the Jordan, the Dead Sea, and several lakes in the Italian Alps. In the New World the exceptions include the Arroyo del Muerte, or "Death Valley," in the Mojave desert, and a few of the larger lakes in Canada, all of which are below the level

of the sea. In the New World these depressions do not exceed a few hundred feet, but in the case of the Dead Sea its mean surface is over 1300 feet below the level of the Mediterranean.

In all the continents the ascent from sea-level is the reverse of uniform; that is, the two inclined planes into which each is divided show a marked difference in their gradation. The Old World and the New are quite opposite in the matter of the direction of their dividing ridges or summits, and consequently in the facings of their several slopes. In the Old the principal mountain chains extend practically from east to west, while in the New the trend is more nearly from north to south. In Eastern Asia the northern slope is more than 2500 miles long, the southern but 400. In Western Asia the respective figures are 900 to 100, and 260 to 80. In Asia Minor the proportion is 300 to 50. In Central Europe, 450 to 100, and in Africa, 3300 to 600. In North America the eastern slope is from 1600 to 1800 miles, and the western from 600 to 900. In Central America the figures are 2000 to 300. In the northern portion of South America the ratio in case of the eastern slope is 1850 miles, western 70 miles; in the southern portion the eastern is 1600, and western slope, 200 miles.

The elevations attained in these different portions are as follows:

In Asia, the plains of Siberia have an altitude of 380 feet; Thian Shan chain, 18,000; highest peak of the Himalayas, 29,000; along the coast of Asia Minor, 5000. In Europe, The Harz, 3700 feet; the Carpathians, 9500, and the Alps, 12,800 feet. In Africa, Lupata chain, 11,000; Nieuweveld, 7000; Zwarteberge, 5000.

In North America, the Apalachians, 6000 feet; Rocky Mountains, 17,800; Sierra Nevadas, 14,000.

In Mexico and Central America the table-lands of Mexico are 7500 feet; Colima, 9000, and Popocatepetl, 19,000.

In South America the Sierra Parime Acarai are 4000 feet; Sierra Parime Duida, 8400; Chimborazo, 20,000; Cayambe, 18,000; highest peaks of the Andes, 22,500 feet.

In the Old World the long slopes look to the north, or more exactly to the north-westward, the short ones facing southward. In the New World the long slopes have an easterly or north-easterly exposure, the short and abrupt ones looking to the westward and south-westward. The secondary slopes of the two worlds are also the opposite of each other. In a general way the slopes of both hemispheres increase toward the equator, although the greatest elevations are not in the immediate vicinity of the latter. In the Old World the highest peaks are near the Tropic of Cancer, and in the New they are near the Tropic of Capricorn.

The grand effect of this arrangement is to vary and control the climatic conditions of the several regions, and to temper the burning heats of some localities which without these modifying influences would be next to uninhabitable.

Geographically speaking, the several continents are of different ages, no two of them having appeared above the waste of waters at the same epoch. In this connection it is a rather remarkable coincidence that not the highest but the lowest mountain ranges were the first to appear, the higher peaks and chains being the results of later upheavals. All the continental masses present evidences of having reached their present altitude or growth by slowly continuous process rather than by any sudden upheaval. Two other coincidences are in evidence, namely, persistency of site, that is, no fluctuations as to the original summits, and an evident tendency to systematic formation into

slopes and counter-slopes. The direction of growth, in the Old World, was from north to south, and in the New, from east to west. Topographically, the area of the Old World is largely made up of elevated plateaus, while the New is distinguished by her system of broad plains. In Central Asia four distinct mountain chains form the bulwarks of the most elevated and extensive plateau known, stretching between two and three thousand miles in length, by fifteen hundred in width, at the widest part. Western Asia is practically absorbed by a single plateau, which has an altitude of from 3000 to 6000 feet; and, as a whole, Asia has five-sevenths of her surface taken up by mountains and plateaus.

To the southward of Sahara, Africa presents a broad expanse of uplifted lands, and two-thirds of her entire area is composed of elevated regions. At the same time the Old World is not devoid of great plains, the northern portion furnishing an apt and striking example, stretching almost from ocean to ocean. Sahara, in Africa, is another specimen, a thousand miles in width, and twenty-five hundred miles long.

Plains occupy two-thirds of the entire area of the New World, the other third being divided between plateaus and mountain ranges. In North America one can travel from Parry Islands and the frozen ocean to the Gulf of Mexico without encountering any elevation of note. In South America the monotony of nearly level plains is only here and there broken, from the llanos of the Orinoco to the pampas of Patagonia. But the contrast between the plains of the two worlds is very great. Those of the Old World are more immense in size, but less important, from the fact that one of the largest, Siberia, is a waste of ice-locked shores, draped in a perpetual mantle of frost and snow, and another, Sahara, is an almost impassable desert of torrid sands. On the other hand, the plains of the New World are her pride and boast, in that they are for the most

part made up of broad, fertile valleys of great productiveness, and possessing climates that invite instead of repelling population and enterprise.

Nor has the growth or elevation of the land-world ceased. No single generation pays much heed to this phenomenon, beyond the quite universal tradition that the earth is gradually drying. Norway and Sweden show the most authentic and striking example of this process. Careful records of observations made under governmental direction prove that nearly the entire area of these countries has been steadily rising for thousands of years. The maximum rise at North Cape is found to be six feet per century. Old beaches are found seventy-five miles inland and 600 feet above the present sea-level. Greenland and South America furnish other marked instances. These changes must gradually, though imperceptibly, affect climates.

This concludes a hasty glance at the configuration of the continents,—the land-world. It remains to consider the leading characteristics of the water-world which encompasses all the continents on all sides.

The great ocean basins are the theoretical counterparts of the land elevations. They are, practically, level plains, broad plateaus and mountain ranges inverted, so that depressions answer to elevations; but the depressions which occur in the ocean beds by far exceed in extent the highest mountain crests of the continents. The highest of the latter are less than six miles above sea-level, whereas ocean depths have been penetrated to twice that distance without finding bottom. Could the waters be suddenly emptied out of the bed of the Pacific there would be exposed to view an abyss beside which the deepest chasms yet explored or discovered would dwarf into insignificance, and before which the stoutest hearts would shrink back appalled. Its shore line is high, ragged and abrupt. It is girt with volcanoes and studded with volcanic islands. Scientists

have determined that this ocean, or rather the depression which constitutes its bed, is the result of the latest great cataclysm or convulsion which this earth has experienced. Steffens promulgated the theory that the immense basin of the Pacific was once an elevated continent, connecting the Old and New Worlds. Be that as it may, it has an extent that is fairly incomprehensible. It is at once the grandest and most awe-inspiring body of water on the face of the globe. Of its currents and counter-currents something will be said further on.

The Atlantic, the other great water-world, is comparatively a mere trough, and while it has depths so great that portions of its bed have never been sounded, its margins are shallow, and all the continents bordering it approach it by gentle gradients. Its interior is not so thickly studded with islands, those which exist are not volcanic, and no volcanoes border its shores. It is traversed by one great current, which will be further discussed in another place.

Summing up the microcosmic, or, if you will, macrocosmic description, in one hemisphere mountains and plateaus predominate; in the other, plains are the distinguishing feature, with mountains as a picturesque and compensating background.

The ocean-beds are not a mere continuation of the continental slopes, nor do their extreme depressions represent the counterpart of the mountain ranges of the land-world. Different authorities vary greatly in their estimates of the depths of the several oceans, as also with respect to the mean elevation of the land-world. Laplace fixed the latter at 3000 feet, while Humbolt places it at not much above 1000. The mean depth of the Atlantic is given all the way from 8000 to 15,000 feet, and that of the Pacific from 7000 to 20,000.

The total area of the water-world is not quite three times as great as that of the land-world. In its bearings on climate

this is a basal and well-nigh controlling fact. Water has an almost unlimited capacity for heat, but, at the same time such poor conducting power that it absorbs heat from the sun very slowly. Evaporation also tends to retard the warming process, even when the sun is very hot. On the other hand, once heated it cools very slowly. It very sensibly controls the temperature of the atmosphere above it, to which it constantly contributes moisture, and thus we have the two important characteristics of sea-air,—modified temperature, and moisture.

On the contrary, the soil of the land-world rapidly absorbs heat from the sun, and as rapidly parts with it by radiation. The atmosphere above the land, except in the immediate vicinity of bodies of water and over marshy, non-porous soils, is not saturated with vapors caused by evaporation, and hence is much drier than that over the ocean. For this reason it is more permeable to the sun's rays, so that in case of equal areas of land and water, similarly exposed, the land will absorb much more heat than the water. Clouds and vapor impede both radiation and absorption, and are much more prevalent over and near the water than on land, especially on land that is remote from water. The natural result is, that sea-weather is much more equable than land-weather, barring the results of a much freer movement of wind-currents, the prolific if not the only source of violent and frequent storms, which of course interfere with all prevailing conditions, absorption, evaporation, radiation and temperature.

For reasons indicated the sea is cooler during the day than the land, but it is warmer during the night. In the vicinity of large bodies of water it is easy to perceive why there is a sea-breeze during the day, which is compensated by a land-breeze during the night. The result of this movement of flow and reflow is a modification of temperatures which without such action would be subject to

violent fluctuations and extremes. Bodies of water are cooler in summer and warmer in winter than the land; therefore they constantly act as modifiers and equalizers of temperature. The immense importance of this equalizing factor is best understood by practical comparisons. For example: Madeira and Cairo are in practically the same latitude, the former being a good representative of the purely maritime, and the latter of the continental climate. At Funchal, on the south-east shore of Madeira, the mean annual temperature has not varied a fraction of a degree from 68° F. within a quarter of a century, the extremes being 80° F. for the hottest, and 63° F. for the coldest months. The difference between the day and night temperatures is equally insignificant. At Cairo the fluctuation is 26.3°, as against 8.7° at Madeira, and the day and night temperatures are in strong contrast. The extremes on Sahara are 32° and 118°.

Natchez and the Bermudas are in the same latitude, and although the former is not very far removed from the ocean the difference in the mean temperature of the two places is, in summer, 16° F., and in winter, 28°. These examples might be fortified by many others, but they are quite sufficient to reiterate and emphasize the fact that the ocean is practically the thermometric regulator and climatic equalizer of the globe. Nevertheless, this imperial arbiter is itself subject to numerous modifying, auxiliary and opposing influences. The character and proximity of ocean currents, and the direction, frequency and velocity of prevailing winds are modifiers to such an important extent that they sometimes seem to set at defiance all the formulated rules of meteorology, and to contravene all the observed laws of climatology. The climate of England is admittedly mild, but her summer suns are not warm enough to ripen corn, or grapes, peaches and many other fruits which ripen perfectly in the same latitude on the continent.

The temperature of the land-world, of the water-world, and of the atmosphere or aer-world necessarily depends on the degree or quantity of heat received from the sun, modified by the rate of heat-distribution, by means of circulation, conduction, reflection and radiation. This ignores the (theoretical) heat of the centres of the earth, which scientists assert does not perceptibly affect the temperature of the land, the ocean or the atmosphere. It has been ascertained that the sea, at great depths, maintains a uniform temperature, all over the globe, varying but little at any point between the equator and the extreme limits yet reached by polar explorers. But the surface waters of the ocean vary greatly, the means being  $27^{\circ}$  in the polar regions, as compared with  $88^{\circ}$  under the equator.

It is also found that the equators of the three worlds under consideration do not coincide. The temperature of the three principal oceans differs slightly, but they have a mean maximum of  $88.15^{\circ}$  F., while that of the thermal equator of the aer-world is  $82.4^{\circ}$ . The ocean is therefore more than  $6^{\circ}$  warmer than the atmosphere. There is, however, a point of both north and south latitude at which the temperature of the sea water is the same at all depths, from the surface to the bed of the ocean. Beyond this point, both northward and to the southward, that is, toward the poles, the temperature of the water is found to increase with the depth of the water. It is this inequality of temperature between the atmosphere and the water of the ocean which gives rise to air-currents, invokes the spirit of Eolus, evolves the storm-cloud, and compasses the complex results,—heat-distribution, rainfall, absolute and relative humidity, and all the numberless phenomena which, in the aggregate, we call climate.

Helix, Cal.

SOME TEXT-BOOKS still describe and recommend Citrate of Caffeine, and many practitioners regularly prescribe it, although no citrate salt of caffeine has ever been commercially furnished—the pure caffeine being supplied always.

## ACETANILID, AND ALLIED PRODUCTS—A CLINICAL REVIEW.

By A. L. BENEDICT, A.M., M.D.,

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Setting aside several semi-proprietary mixtures and a number of organic chemicals that possess antipyretic properties as subordinate to other physical actions, there are three rival drugs which suggest themselves whenever our aim is to reduce temperature, or allay neuralgic pain or febrile discomfort. These are, in historical order, antipyrin, acetanilid and phenacetin.

Without pretending to go into historical details, a retrospect may be of interest. The Dispensatory of the United States, issued in 1884–5, as an almost official commentary on and elaboration of the Pharmacopœia, does not even mention one of the trio. In 1886 antipyrin was still a very new drug and clinicians were just recovering from their disappointment at finding that, while they had gained the power of forcing temperature down, the fever as a disease remained essentially the same. A physician learning to use a new drug is like a man learning to drive. The latter jerks his horse first to one side and then to the other, and gains the power of well-regulated and almost imperceptible guidance only after long practice. So, the clinician using a new drug, starts with sufficiently energetic doses to obtain well-marked physiological effects; the cautious use of moderate doses and the critical observation of slight symptoms, come only with experience. The standard dose of antipyrin has descended from three or four grammes in 1885–6, to two in 1886–7, to one or one-and-a-half in 1887–9, and finally to fifty centigrammes, while the same men who a decade ago hoped that the liberal use of this drug would rob typhoid fever of its danger, now condemn its use and have transferred their enthusiasm to the Brand treatment.

Acetanilid first came prominently to the notice of the American profession in 1888, under the name of antifebrin. As judgment in watching the effects of antipyretics had then been acquired, the standard dose has remained about the same, twenty-five to fifty centigrams, though, naturally, the impressionist school of therapeutists began with a larger dose and, with increased experience, a greater nicety of adaptation has been acquired. Phenacetin, of much more recent date, is not yet officinal, but is almost as popular as either of its rivals.

Antipyrin is very soluble, and has a bitter taste, though not so nauseating as that of quinine. Acetanilid is very slightly soluble in water and possesses a pungent, burning taste, which is rather agreeable to some persons and rarely offensive after the first dose or two. Phenacetin is scarcely at all soluble in water, and hence is tasteless. The last two may be given dry on the tongue and washed down with water, or they may be dissolved in alcoholic drinks.

The principal factor upon which a choice among drugs should be based, is the safety of administration. The testimony in this regard is somewhat conflicting and, for some time, the weight of evidence was in favor of antipyrin and against acetanilid, phenacetin not having then been discovered. The last three issues of Sajous' Annual contain no reference to fatal accidents following the use of any of the three. It is to be noted, however, that several cases of antipyrin habit have been reported, and that there seem to be more idiosyncratic cases with reference to this drug than to the others; several instances of eruptions, collapse, and various nervous phenomena being reported in current literature from moderate doses of antipyrin. The writer has watched the reports for and against acetanilid, for several years, especially during the period about five years ago when the Philadelphia journals, as well as several prominent teachers, were united in

the attempt to prove the superiority of antipyrin over acetanilid. During this period, not a single death from acetanilid was reported nor one case in which alarming symptoms were observed except after the most reckless dosage, averaging about three grammes for an adult, either at one dose or in the course of a few hours. In some cases, the patients had taken the drug without medical advice; in others, the physicians who condemned the drug were simply publishing evidence of their own malpractice. It is gratifying to note that the prejudice against acetanilid has almost disappeared and that medical literature shows more dangerous drops of temperature and evidences of collapse from antipyrin than from either acetanilid or phenacetin.

The writer is not competent to discuss the relative merits of acetanilid and phenacetin, the former having been so uniformly satisfactory in his practice as to discourage an inclination to experiment with a new drug; though the few instances in which phenacetin has been used do not justify a prejudice against it.

Let us now discuss the therapeutic uses of

#### ACETANILID

somewhat more in detail.

*Headaches.*—Acetanilid was first recommended as useful in nervous but not in other headaches. In 1888, with the neglect of exact indication characteristic of a physician when prescribing for himself, the writer took a dose for a headache of gastric origin and was surprised at the prompt relief that followed. After this, its availability in gastric headache was established in a series of cases which were not reported. The same observation was made independently by others and published somewhat later. The antiseptic action of acetanilid in the stomach explains its value in fermentative as well as in nervous headache.

*Temperature.*—Acetanilid is a prompt antipyretic in almost all conditions of hyperpyrexia. Except in toxic doses, it does

not reduce normal temperature. An appreciable effect may be expected in about an hour, the maximum effect occurring about two hours later, and all effect being over from four to seven hours after the medicine is taken. It is certainly bad practice to give acetanilid or any other antipyretic drug repeatedly in a low fever, of which typhoid may be considered the common example. The writer, however, would prefer an occasional dose of acetanilid, even in typhoid, to the use of prolonged immersion in cool water. This idea is rank heresy at the present time. It is not rational to give acetanilid in malarial fevers, since quinine is not only somewhat antipyretic but specific by attacking the plasmodium. On the other hand, it is equally irrational to use quinine in non-malarial fevers, except for its tonic action.

*Pain and Discomfort.*—Just as the physician of a decade ago had to use aconite, quinine, and other more or less indirect means of reducing temperature, so he also lacked a valuable and comparatively harmless means of relieving pain. There used to be a sharp distinction between the words *anodyne* and *analgesic*, the former being limited to drugs intended to relieve severe pain, the latter embracing milder measures. It is a pity that the distinction is not at present in vogue, in spite of the fact that an arbitrary line cannot be drawn between the two classes. The writer would place acetanilid—or perhaps its methyl derivative, exalgin—at the head of the analgesics, as morphine is indisputably at the head of the anodynes. Even as an antipyretic, it is a question whether the beneficent effect of the drug is due so much to the reduction of temperature and the diminution of tissue waste as to the rest afforded from the peculiar discomfort, vague pain and, perhaps, exhausting delirium of fever.

In deciding between *analgesic* and *anodyne*, we must not only bear in mind the difference in degree of pain, but must discriminate between pain of

functional and of organic nature. An agonizing neuralgia or a gastric or other crisis, which is in itself functional, though occurring in an organic disease, may yield to acetanilid, when a moderate pain due to a wound may require morphine or a local anæsthetic. In rheumatism, although the pain may be considered a positive manifestation of the disease, it is greatly lessened by the combination of acetanilid with salicylates. We must also distinguish between pure pain and a painful spasm of unstriated muscles, and, in the latter, have recourse to nitrites, atropine or some other relaxing agent. In dysmenorrhœa, I used to employ with good effect a solution of acetanilid in compound spirits of ether, both nervous and spasmodic pain being thus provided for.

*Hypnotic and Cerebral Sedative.*—It is strange that it has not occurred to more of the profession that a drug which sedates one nerve tissue may also quiet another, yet the use of acetanilid in peripheral affections has become common practice, while the same drug is rarely employed for the nerve centres. The ideal hypnotic is not a sleep-compellor but a harmless drug which shall soothe the brain, diminish the effect of external stimuli and allow natural sleep to overcome the faculties. Although we have no perfect hypnotic, there are a number that are fairly satisfactory. The writer uses by preference a combination of a gram of sodium bromide and twenty-five centigrams of acetanilid. This prescription does no harm if not too often repeated, and loses its influence very slowly.

*Antiseptic.*—The writer would lay it down as an almost infallible rule that substances having a selective affinity for nervous tissue depress all forms of life in which there is no specialized nervous system. In other words, a drug that is markedly antipyretic, hypnotic, anodyne, or excitomotor, will, in the absence of some contradictory reason—for instance, insolubility—act as an antiseptic; it will have a corresponding action on unicellular organisms,



including the white corpuscle of the blood, and will check its amœboid motion; it will similarly lessen the activity, *i. e.*, the oxygen-carrying function, of the red cells, which are modified leucocytes; it will thus lessen metabolism and excretion. Many drugs, such as quinine and strychnine, practically never present the latter actions in the animal body simply because the therapeutic and even the tolerable toxic dose is inadequate to affect the blood cells. It is not surprising, in virtue of this law, that a valuable antipyretic and analgesic, like acetanilid, will relieve the unpleasant symptoms of gastric and intestinal fermentation, will prevent the development of germs in a wound, and, in too large a dose, will diminish tissue change and cause cyanosis. The writer has never claimed to be a surgeon, and, of late, he rarely handles a cutting instrument, but he prides himself on two surgical virtues, during his general practice; first, that he used acetanilid as a powder dressing from an appreciation of its physiological action, at least five years before this use became popular, and, secondly, that he adhered to the dry dressing of wounds in spite of the example and precept of some of the most noted Philadelphia surgeons who taught that every serious wound must be poulticed with layer after layer of wet gauze to prevent germs from crawling under the bandages as they were supposed to do if a light dry dressing were used.

Like iodoform and other antiseptics, acetanilid is also a local anesthetic, in accordance with the general law cited. Acetanilid is not so markedly sedative as iodoform, and it seems rather to stimulate than to retard granulation.

#### SPECIAL REASONS FOR PREFERRING OTHER DRUGS.

Antipyrin has a well-established reputation for checking capillary hemorrhage when sprayed upon the bleeding part, for checking the secretion of milk, and for quieting motor spasm, as in whooping cough and asthma. It is possible that acetanilid and phenacetin may take the

place of antipyrin in the last two applications, but their value has not yet been proved. In cases of excessive pain, we must bear in mind the theoretical advantage of a methyl radicle and, consequently, consider the propriety of substituting exalgin for acetanilid. Empirically, however, this advantage is not very apparent. The tastelessness and greater insolubility of phenacetin and its consequently more gradual action may, at times, lead to its preferment.

In addition to the three prominent antipyretics, it is only fair to allude to two newer rivals for professional favor. Acetanilid, phenacetin, phenocoll and lactophenin are all nitrogenized modifications of the same aromatic ring of carbon and hydrogen atoms from which carbolic, salicylic, benzoic acids and various other valuable organic chemicals are made. Acetanilid contains the acetic acid radicle; phenacetin transposes the arrangement of the molecule and adds an ethyl radicle. Phenocoll and lactophenin are slight chemical modifications of phenacetin, the former introducing an ammonia group into the acetic acid radicle and the latter substituting lactic for acetic acid. We are thus warranted, *a priori*, in attributing to these newer drugs therapeutic values and doses similar to those of acetanilid and phenacetin. Actual experiment has shown that both are safe when administered in moderate doses of from half to one gram or even more.

Von Jaksch has defied modern notions by administering *lactophenin* in a series of typhoid cases, and he emphasizes, not so much the antipyretic value, in which this drug has no superiority over older ones, as the relief of febrile discomfort and sleeplessness. The sole unpleasant symptom noted in eighteen patients, to whom the drug was given *p. r. n.*, was that one patient vomited the first dose. As he subsequently took the drug well, this may have been purely a nervous phenomenon. Landowski, Gissler, Jacquet and others speak highly of the

analgesic and hypnotic effects of 1 gramme doses, in articular rheumatism, sciatica, erysipelas, etc., claiming that, while fifty or sixty centigrammes produce practically the same effect as a corresponding dose of acetanilid or phenacetin, 1 gramme doses have a hypnotic action that the latter do not afford. The drug is almost insoluble, but has a slightly bitter, not disagreeable after-taste; it is best taken in capsule or wafer, or in tablets. In a patient suffering from dizziness, not relieved by restoring the digestive function of the stomach—for which he consulted me—nor by having glasses fitted, nor by attention to the nose and sinuses, lactophenin gave almost immediate relief, though acetanilid, bromide and atropine had signally failed. At first, fifty centigrammes were used, in a single daily dose, later the dose was reduced to twenty-five centigrammes.

Cerna and Carter, experimenting in the laboratory of the University of Pennsylvania, found that *phenocoll* in moderate doses neither depressed the circulation nor the normal temperature, nor did it cause the formation of methæmoglobin. Theoretically, the substitution of amido-acetic acid for plain acetic acid in the molecule, may be expected to render the drug less depressing than phenacetin, just as ammonium bromide is less depressing than potassium bromide. Albertoni reports that he has cured twenty-four out of thirty-four cases of malarial fever with phenocoll, including some cases in which quinine had not prevented a relapse. Other authorities give clinical proof of the various methods of usefulness that may be inferred from the classification and chemical constitution of phenocoll.

With the increasing multiplicity of organic chemicals and the possibilities for substitution of comparatively inert radicles for those that may have a harmful action, or the modification of a drug by the interchange of subsidiary radicles, three necessities become more and more manifest. First, we should know, in general terms, the relative values of allied chemi-

cals in which various acid radicles occupy the same relative positions; Secondly, a nomenclature devoid of too great technicality, yet plainly indicating the resemblances and variations of allied drugs should be obligatory; Thirdly, more or less formal supervision of the drug trade, should be provided for so as to secure the first two desiderata and to regulate prices and distribution with due regard both to the rights of manufacturers and those of physician and patient.

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### THE ACTION OF LACTOPHENIN.\*

By Dr. SENFT, of Wiesbaden.

The report of Dr. Koebl,† in No. 42 of the *Wiener Medizin. Presse*, detailing unfavorable side-effects from lactophenin, especially the developing of icterus which persisted for several weeks, and warning against its use for women and children because it sometimes induced symptoms of collapse, prompts me to write in defense of lactophenin on the basis of my extended experience with the product.

The published reports on the action of lactophenin up to date afford the following resumé:

1. It is an excellent antipyretic, at least equal to phenacetin and antipyrin, and free from the unfavorable effects which antipyrin has on the stomach.

2. As anti-neuralgic and anti-rheumatic it is equal to phenacetin and antipyrin (and in my practice it has exerted its favorable effect in two cases of intermittent neuralgia where quinine and arsenic had failed)

\* Original published in *Wiener Med. Presse*, No. 50, Dec. 15, 1895; this translation original in the *AMERICAN THERAPIST* by request.

† Dr. Koebl reported two cases (one of muscular rheumatism, the other of trigeminal neuralgia), in which patients received 1 gramme doses lactophenin three times daily; icterus developed in both cases and persisted for a week or two. Nothing serious happened; the author states "that the remedy influenced favorably the general health of the patients." The report does not deserve serious consideration; the dosage was too palpably excessive. In  $\frac{1}{4}$  to  $\frac{1}{2}$  gramme doses, 3 times daily, the full and perfect therapeutic effect of lactophenin can be secured.—ED.

3. As a sedative, all observers have unanimously praised its soothing effect in typhoid, pneumonia, erysipelas, etc., as also its favorable influence on the accompanying delirium in these diseases.

4. It is a medicament free from the unpleasant side-effects of phenacetin and antipyrin, such as sweating, and particularly the unfavorable effects on the stomach and on the action of the heart (symptoms of collapse); the latter effect has been observed only rarely in isolated cases.

My experience with lactophenin in many hundreds of instances and in the greatest variety of indications (as antipyretic, anti-neuralgic, etc.), accords fully with all published reports up to date.

In treating children especially lactophenin has become for me nearly indispensable as antipyretic in pneumonia, bronchitis, typhoid, acute gastritis, diphtheria, etc., not only because it promptly reduces the temperature (in even smaller doses than of antipyrin), but because of entire absence of untoward side-effects (even in acute gastritis) on the stomach and particularly because no depressant effect is exerted on the heart.

Because of the last named advantage, I employ lactophenin in my private practice as antipyretic in place of the inconvenient cold baths, and the results are just as good in cases of pneumonia, of acute gastritis, and in treating children.

In not one case out of many hundred children treated with lactophenin have I observed icterus or collapse. Why lactophenin should unfold its untoward side-effects in the form of distinct collapse symptoms, particularly in children's practice (as is stated by Koebl), provided the circulatory organs and nervous system are intact, I would be unable to explain.

An error, which unfortunately is too common in administering antipyretics, is that the doses are made too large and are often administered at regular intervals (3 to 5 times daily) even if the necessity for the antipyretic is not apparent.

In such cases the temperature is, of course, lowered below the normal, without, however, justifying—from pulse or general symptoms—the charge of collapse.

When treating children in feverish conditions, the lactophenin dosage should be regulated so that infants up to one year receive not more than 0.05 gramme ( $\frac{3}{4}$  grain) at a time, and older children more according to the usual scale:

2 years old	one-eighth	of regular adult dose.				
3	"	"	one-sixth	"	"	"
4	"	"	one-fifth	"	"	"
7 to 12	"	"	one-third	"	"	"
12 to 14	"	"	one-half	"	"	"

Observing such general precautions, so far as my experience justifies on opinion, all unfavorable effects will be avoided, even though an occasional inconsiderable idiosyncratic drug-exanthema may occur—of which I have, however, not yet observed any instances.

On the basis of my manifold experience with the drug, I must give lactophenin the preference over phenacetin and antipyrin, and I strenuously recommend its use, especially in treating children.

**A REMEDY FOR THE TREATMENT OF URIC DIATHESIS, URINARY LITHIASIS, AND AMMONIACAL FERMENTATION OF THE URINE IN CYSTITIS.**—Prof. A. Nicolaier (*Medical Week*, September, 1895) Privat-docent of Internal Medicine at the Medical Faculty of Göttingen, has experimented at the medical clinique of Professor Ebslein with hexamethylenetetramine, or *urotropin*, to the anti-uræmic effects of which attention was called last year by Dr. Bardet (Paris) and by Professor Nicolaier himself.

These experiments showed that ingestion of urotropin causes uric gravel to disappear and prevents ammoniacal fermentation in cases of cystitis. In healthy persons the urine acquires, under the influence of urotropin, the property of keeping indefinitely without presenting a trace of ammoniacal fermentation. When kept in the autoclave at a temperature of 37° C. it dissolves within a few days small uric concretions, the size of a millet seed, which have been added beforehand.

These effects may be obtained with doses of from one to one-and-a-half grammes daily, which are usually well borne, and which it is well not to exceed, inasmuch as, although in some cases urotropin may be ingested without inconvenience in doses of from eight to ten grammes daily, there are persons in whom smaller doses, six grammes for instance, determine a smarting sensation in the vesical region, pollakiuria, and the appearance in the urine of epithelial elements and red blood corpuscles in variable quantities. These disturbances, however, rapidly cease as soon as the administration of the remedy is discontinued.—*Medicine*, Dec., 1895.

**CHRONIC LITHÆMIA—WITH A CONSIDERATION OF VARIOUS URIC-ACID SOLVENTS.\***

By J. W. IRWIN, M. D., of Louisville, Ky.

These specimens of urine were obtained a few days ago, from a gentlemen over seventy years of age. I was present at the time they were voided, and saw the crystals of mixed urates as you now see them, of a reddish brown color, as the urine was received in the vessel. This point I wish to emphasize especially, as it furnishes the chief reason for bringing the subject to the notice of the Society.

Authorities on disease of the urinary apparatus have asserted that there is much room for doubt as to crystalization of the urates ever having taken place within the living human body, although it is said by some to have occurred. They all agree that crystals result from urine after it is voided and has had time to cool. The specimens presented put at rest all doubt. They are the proof itself.

The patient from whom the specimen was obtained has been a sufferer for upward of twenty-five years from pains in his arms, back and legs, mostly confined to the muscles of those parts. The joints have suffered at times but there never was observed any swelling or tenderness under pressure.

His temperature in the axilla has been subnormal and perspiration has been deficient in quantity for several years. Parts of the body have been very sensitive to slight changes of temperature. The left side has been more sensitive than the right, and a sensation as if the left leg and left side of the back were enveloped in a wet sheet has been felt by the patient for a long time. There is no loss of muscular power though his right arm has become so tremulous that he can hardly use a pen. He suffers much from depression of spirits and at times he is almost

a melancholiac. He has a feeling of disinclination to do any kind of mental or physical labor, the former being especially repugnant for him to think about. He has had trouble with suffusion of the eyes for several years past and a haziness of vision which the most carefully selected spectacles have not improved. When he lies down to sleep dryness of the mouth and throat supervenes so that he is obliged to wear a rubber breathing inhibitor for relief.

His digestive powers are weakened and very defective at times. Flatulence and constipation are nearly always present, the feces are usually scybalous and of a very light color. The urine has nearly always been of a high specific gravity, from .1020 to .1032, and it has not contained either albumen or sugar. It has been intensely acid at all times when the patient has not been using alkalies.

The daily quantity voided has varied from one pint to three or four quarts. Its color changes from pale yellow to red orange.

The patient has been troubled with insomnia for many years and the use of hypnotics cause rather imperfect sleep, the mind remaining at work—kaleidoscopic views of the business of the previous day passing in review before it.

I believe this is a case of chronic lithaemia. The cause of his bad health dates back for many years. As a young man he was much exposed to malarial influence which appears to have been the starting point of his trouble. Much mental fatigue and business cares extending over a continuous period of upward of fifty years have contributed to prevent a return to robust health.

I shall not attempt to speak of the treatment of this case in detail, as in such disorders no regular course of medication can be followed. Conditions which arise from time to time suggest such remedies as we may have at our disposal. This has been my rule in the management of the case.

\* Read before the Louisville Clinical Society and contributed exclusively to the AMERICAN THERAPIST.

As solvents of the urates, I have found no remedies so efficient as citric acid or lemon juice. The waters of numerous mineral springs have proven useful as diluents.

#### DISCUSSION.

Dr. I. N. Bloom:—Concerning solvents of urates or uric acid: I just finished the treatment of a case yesterday which came to me two weeks ago, in which I tried urotropin; the patient was referred to me by Dr. Scott. The specific gravity of the urine was .1030, free from albumen and sugar, but a large quantity of uric acid was present; the urine was highly colored, the coloring matter being decidedly increased. I gave him urotropin in five grain doses four times a day, and in three days the urine had become perfectly clear, there was no deposit at all, and the patient was discharged yesterday.

This is the only case in which I have used urotropin and simply wish to add it to the other solvents.

Dr. Wm. Cheatham:—I have used urotropin in several cases with good results. These were cases of asthenopia found to be due to the uric acid diathesis, there being general rheumatic symptoms. In giving urotropin I combine it with salicylic acid. I give two drams of urotropin and one dram of salicylic acid in eight ounces of water, a tablespoonful at a dose. This would make the quantity of urotropin taken at a dose about eight grains.

Dr. Carl Weidner:—The indication in these cases, it seems to me, is not only to pay attention to the dissolving of the uric acid as it is formed in the urine after it leaves the kidney, but to prevent as much as possible its formation. In these cases we not only have an excess of uric acid thrown down in the urine after it has left the kidney, but we have a large excess of uric acid constantly present in the blood, and we ought to pay attention to its prevention by a well regulated diet, and above all counteract its effects in severe cases by giving appropriate medication for several months. Dr. Irwin has mentioned lemon

juice to produce alkalinity of the urine, and he says if given for a long time it will lessen the proportion of acid in the urine. It seems to me a better plan would be to give alkaline waters. I would suggest the regular use of alkaline waters. We may give bicarbonate of soda or any water containing it, which will undoubtedly counteract the condition as it exists in the blood.

As a solvent I have used within the last three or four years principally piperazin, which has been praised very highly by Dr. Biesenthal, of Berlin. I have reason to be satisfied with its use especially in those cases which we recognize as gouty in character; in these cases I have found it to act admirably.

Dr. P. Guntermann:—It has been my experience that cases such as are under discussion are usually associated with stomach troubles. It is a matter of digestion, or more properly speaking indigestion, that brings about the condition of the bladder or the urine which has been mentioned; it is not trouble with the kidney as the kidneys simply carry off what they ought to carry off. I have often seen urine very heavily loaded with uric acid, having absolutely a thick sediment after standing a short time. Whether it was mixed with the urine before or after leaving the kidney I do not know, but after it was voided it was distinctly perceptible to the naked eye; and this condition has always occurred in connection with a disordered digestive apparatus, and when this is properly attended to the kidneys will take care of themselves. Lime juice, the different acids, etc., may do their work, but it is to the stomach that the physician should direct his attention, and when its functions have been properly regulated I think he will find the urinary troubles will have been corrected.

Dr. J. W. Irwin:—The patient mentioned in my paper has been the subject of long-continued stomach trouble. I used citrate and lithiate of potash for a time with some benefit in dissolving the crystals, not be-

cause there was a deposit in the urine after it was voided but to lessen, if possible, or prevent the formation of the crystals which were deposited somewhere in the urinary tract before the urine was voided. Three persons saw the samples of urine voided which I have presented for your inspection, so there can be no question as to the crystals having been formed before the urine was passed.

Touching the question of urotropin—I have not used it in this case. I have had no experience in its use. As to alkaline waters—they can be taken only for a comparatively short time, because they render the urine too alkaline. The patient has some enlargement of the prostate gland which prevents his emptying the bladder entirely, consequently the ammoniacal urine causes irritation and a frequent desire to micturate, and therefore alkaline waters cannot be continued for any extended period of time.

As to solvents: The best one I have found has been lemon juice. He can take this with less irritation following the slightly alkaline urine than anything else I have tried. Where diluents are elements to be considered, lithia water would seem to be the ideal solvent of all. I have frequently seen masses of urates passed with the urine of infant children, and the mothers have mistaken the deposit for blood. Upon examining the deposits nothing was found but urate of soda. I believe in the case reported that the nerve strain, nervous depression, the overtaxed state of the nervous system, has more to do with the trouble than digestive disturbances.

As to the use of piperazin: The patient had been taking piperazin at the rate of forty-five grains per day for four days before the crystals were passed.\* For twenty-four hours before the passage of urates, the patient's distress was increased, but it subsided after voiding urine containing the crystalized urates.

\* The average daily dose of Piperazine is 15 grains, and more than this quantity has been proved unnecessary and excessive. A natural inference from the author's statement, although evidently not his view, is that the crystals observed had been accreted and were partly dissolved, loosened and rounded by the piperazin, thus making possible their passage out in the urine.—ED.

## PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M.D.

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Secretary of the Richmond Academy of Medicine and  
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### STRYCHNINE AS A HEART TONIC IN TYPHOID FEVER.

In a paper with this title, KERNAN (*Va. Med. Monthly*, Oct., 1895), makes some very interesting statements. He says, that when the heart begins to grow weak, temperature runs high, abdomen is distended and symptoms begin to develop which point to a low state of the nervous system, such as sub-sultus tendinum, loss of control over the sphincters, low, muttering delirium, etc.; strychnine given in appropriate doses will do most towards tiding the typhoid fever patient over the crisis, and giving him a better chance of recovery than any other agent in the *materia medica*. He quotes Prof. Davis, of Chicago: "Alcohol is not a heart tonic, and should not be used at all in diseases attended with marked failure of the vital forces." Kernan contends that joint administration of strychnine and alcohol procures a condition in which the former seems to hold the heart at the point to which the latter raised it. He advises that the alcohol be given one hour before the dose of strychnine. The dose of strychnine varies in the several cases described, according to the patient's condition and effects produced. Thus, in the first,  $\frac{1}{100}$  of a grain was given every four hours; the following day, because of no improvement, every three hours, and finally every two hours. Collapse ensuing,  $\frac{1}{100}$  grain was injected an hour after the administration of  $\frac{1}{100}$  grain by mouth, and repeated an hour later. Following this, until death,  $\frac{1}{100}$  grain was given every hour, hypodermically. Case II. was given  $\frac{1}{100}$  grain every three hours, with one-half ounce whiskey. Case III. was given  $\frac{1}{100}$  grain with one-fourth ounce

whiskey every four hours. Case IV. was given  $\frac{1}{8}$  grain and one ounce whiskey every two hours. He had five hemorrhages, but recovered. Case V., a delicate boy of 13 years, was given  $\frac{1}{8}$  grain and one-fourth ounce whiskey every three hours. Case III. was a delicate girl of six years. In selecting the cases, Kernan says he has taken those in which a large amount of strychnine was used, to show to what extent it can be administered in suitable conditions.

Strychnine, without doubt, is *the* remedy, if the conditions described are *allowed* to come on. But we must bear in mind that these "suitable conditions" are not brought about merely for the purpose of determining the largest amount of strychnine that can be given. *The smallest dose given sufficiently often to produce physiological effects* is, or should be, the slogan of rational therapeutics. More than this is apt to produce dangerous complications. As has been aptly said, "Who knows whether a number of patients die from the diseases afflicting them, or from the drugs administered to antagonize the disease?" And so, we plead again for smaller doses.

As to alcohol, it should be given, too, not only for its stimulant action, but for its food value. Katabolism, in fever, is greatly in excess of anabolism, and here is where small doses of alcohol are of decided benefit, for they stimulate the flow of the gastric and intestinal juices; oxidation is interfered with, the nervous system is stimulated, temperature is lowered because of dilatation of the vessels, and the heart is acted upon both directly and indirectly, having increased power. In small doses, too, alcohol is eliminated by the lungs, lessening  $\text{CO}_2$ ; by the urine, increasing the amount but lessening the phosphates and nitrogenous waste. When large amounts are administered, we have increased amounts of alkaline mucous in the stomach, retarding digestion and resulting in dyspepsia; there is loss of muscular power, a feeble heart; *temperature is*

*lowered because of the general depression.*

At a recent discussion at the Richmond Academy of Medicine and Surgery, one physician, who has labored long in the profession, said, it is wonderful to see the amount of whiskey typhoid patients will bear. He had lately given a pint within twenty-four hours to a young girl. The writer said he thought the practice a most pernicious one, for reasons stated. *Apropos* of typhoid, the same gentleman remarked, that he had wonderfully good results from bromides and chloral in delirium of this fever; and following him, spoke a younger man who said, the delirium showed a depression of all vital energies, and the drugs mentioned, furthering this depression, were certainly most emphatically contra-indicated.

An ounce of alcohol, sometimes even a half-ounce, three times daily, has been found by the writer sufficient so keep the patient stimulated. More than the first quantity, is eliminated, to the extent of 16 per cent.

#### ADMINISTRATION OF QUININE IN MALARIA.

It had been clearly established that quinine is most efficacious when given just before, or at the time of, the paroxysm. The segmenting forms and the young blood are much more susceptible to its action than the older forms completely enclosed in corpuscles. When two broods of the tertian organism are in the blood, giving rise to a quotidian fever, it has been found possible, by giving quinine at the time of a paroxysm, to kill one brood, leaving the other intact.—(*Boston Medical and Surgical Journal*).

#### SERUMTHERAPY—LABORATORY EXPERIMENTS—CLINICAL WORK.

Dupaquier, in a paper on the *Serum-therapy of Tuberculosis* (*N. O. Medical and Surgical Journal*, Sept., 1895), takes occasion to say that there is for the present a very large obstacle to the brilliant success of the method in tuberculosis, as well as in other infectious diseases, and that is the mysterious factor of *microbian*

associations. No one has succeeded yet in satisfactorily explaining the mechanism of those associations, and the latest researches on the subject, . . . . ., go to show how warily and guardedly one must apply to man the results obtained in experiments on animals. This is too important a point to be dismissed with a mere passing mention. You know that the bacillus prodigiosus, which is not pathogenic, has been recently employed in bacterio-therapy as an antagonist to the bacillus anthracis. Roger injected a mixture of bacillus anthracis and bacillus prodigiosus cultures in rabbits and guinea-pigs. In the rabbits the prodigiosus effected a therapeutic action, to-wit: The test animals inoculated with bacillus anthracis alone, died from the second to the fifth day; the animals that received together the bacillus anthracis and prodigiosus lived. In the guinea-pigs, very unexpectedly, the contrary of this beneficial action occurred. The guinea-pigs injected with the beneficial mixture presented, after a very short time, extensive edema and all died, even before the test animals that had received the fatal bacillus anthracis alone. Thus, the same microbial association may have diametrically reverse effects in two different animal species. The result in the guinea-pigs forbids any therapeutic attempt in clinical work; for one cannot tell or foresee what would befall if similar injections were made in the human species. In short, we have to deal, in combatting infectious processes, with a mysterious factor of which we know nothing yet except that in some cases, such and such association will prove beneficial, and in other cases the same association will prove fatal.

Here is food for thought, and it must give us pause. No one believes more thoroughly than the writer in the immense and innumerable benefits conferred on suffering mankind by laboratory investigation; but here as elsewhere, some conservatism is necessary, and to go heedlessly into the clinical application of

agents which are as yet in the stage of infancy, is to take our lives in our hands, exemplifying the statement that "fools rush in, where angels fear to tread." For, day after day come reports of ill-effects from the injection of serum; not alone of its globulicidal action upon the colored corpuscles, but, too, of degenerative changes in the kidneys and hemopoietic system. An editorial in the *Medical News* (Nov. 23, 1895) well says, that "these results indicate that it is no longer wise to look upon the serum as an inert and harmless substance, and suggest that greater caution should be observed in adopting this treatment."

Now, with regard to the injection of antagonistic serum, *i. e.*, serum cultures of a germ supposed to be inimical to a certain other, as erysipelatous culture and sarcoma, comes the warning of Dupaquier as stated in the foregoing.

The writer often has stated his belief in the fact that serum-therapy has accomplished much good; but who can look into the future and tell to what diseases the injections may give rise? It is well to call a halt now, to get our bearings and determine the plan of action for the future.

Concerning antitoxine and the immunity from serum possessed by subjects immunized against hydrophobia, tetanus and abrin, the editor of the *Medical News* says they are also immune to diphtheria, ricin and anthrax. A series of experiments showed that in certain cases, *the normal serum of man* is distinctly antitoxic against diphtheria.

These results, he further says, form an intensely interesting and suggestive group, and taken all together would seem to justify the belief that immunity mainly consists in the raising to a high pitch of the *general* resisting-power of the normal serum. If this be the case, may we not hope that some antitoxin will ultimately be found that will have a protective effect against a whole class of diseases, or that we may discover how to develop this normal immunity, which many of us un-



questionably possess already (else the race were long ago extinct), by hygienic means?

This embodies exactly the ideas the writer has sought to convey to his readers, and he refers to the articles on nuclein and phagocytosis that have appeared from time to time in this department of the AMERICAN THERAPIST.

#### PSEUDO-LEUKEMIA SUCCESSFULLY TREATED WITH ARSENIC SUBCUTANEOUSLY.

KATZENSTEIN (*Deutsches Archiv für Klinische Medizin*) has reported the case of a man, presenting the characteristic symptoms of leukemia, in whom a cure was effected by the subcutaneous injections of progressively increasing doses of solution of potassium arsenite. In the course of six months, in the neighborhood of one hundred injections were made in the back on either side of the vertebral column, with the result of effecting disappearance of both objective and subjective symptoms. At first, one-and-a-half minims properly diluted were injected, and the dose was gradually increased every third day, three-quarters of a minim, until fifteen minims were injected daily, a free interval being permitted every two weeks. Finally, nine minims gradually increased to fifteen, were injected twice daily. Then the doses were gradually reduced until the treatment was discontinued, and the patient was dismissed as cured. The patient had a previous history of syphilis. Examination of the blood showed 4,720,000 erythrocytes to the cubic millimetre; the leucocytes, 12,200. The former were free from poikilocytosis, and nuclei. Some of the multinuclear leucocytes were eosinophilous. (*Medical News*, Nov. 23, '95).

One of the best explanations of the action of alteratives coming to notice, is that of Bruce. They act by *exercising* the tissues, and this may be in two ways: Taking mercury and iodine, they increase metabolic change in order to remove excessive growth. They hasten the life-processes of the young cells so much that

the cells disappear in the form of products, or, as it is commonly expressed, are absorbed. It is essential to the success of this plan of treatment that the alterative substance should be thoroughly under control, and that abundant food be ingested to prevent failure of nutrition.

Secondly, there is an effect of exercise beyond an increase of work accomplished: work that is increased in *amount* can be changed in *kind*; exercise is beneficial, not only to the indolent individual, but to the vicious. So with the tissues. Exercise may bring them into a new, a normal state of function, when they have been deranged, or even diseased. In order to get the tissues to work normally, we must get them to work somehow, knowing that such work means chemical change, or even active nutritive renovation of the elements. The natural disposition which all tissues inherently possess to return to the normal is thus afforded an opportunity for coming into play, and the result is, not a mere increase of activity, but also, an *alteration in kind*, of the activity. Henceforth, the protoplasm, if supplied with an abundance of food and oxygen, itself returns to the normal state. Among others, arsenic is used chiefly for this second purpose.

Hence, then, are the means by which alteratives work, and we have another exemplification of the touch of cellular therapy.

#### SODIUM CAFFEINE-SULPHONATE—ITS ACTION, WITH REPORT OF A CASE.

The German chemists with indefatigable efforts have added no little in the last decade to our armamentarium. If there be any fault to find, it must be the placing of their products before the profession previous to a full investigation upon the human being. Physicians, because of their environments, are too prone to accept as worthy, drugs that have been given a trial and found successful in a single case. Upon personal use, if wished-for results are not forthcoming, they are too

prone, again, in throwing it aside as useless. Following this method, we can never come to a constant employment of certain new agents. Antipyrin when first introduced was a cure-all; it was placed in the hands of the laity, and the reaction following was natural. We are finding new uses for this drug to-day. Acetanilid met with the same fate except in the hands of a faithful few, who are employing it judiciously, *i. e.*, in selected cases and appropriate dosage. Phenacetin seems to be going the way of its predecessors. This brings me to speak of a synthetic compound, which, while its action is not at all like those of the remedies mentioned, may meet with the same fate because of inadequate trial.

Sodium caffeine sulphate was introduced quite recently to take the place of the uncertain medicaments we have to combat suppression of urine.

Caffeine, itself, is a direct diuretic, *i. e.*, it acts upon the secreting cells of the kidney. But this action is not to be depended upon because of the contraction that may be produced by it, counterbalancing its excito-secreting power. So that it cannot always be depended upon. That it is a stimulant to the renal epithelium was demonstrated by v. Schroeder who administered to animals chloral at the same time he gave caffeine. The effect of the former was, of course, a dilatation of the vessels, but the secretion of urine, notwithstanding, was increased.

To remove from caffeine its uncertain character, experiments were made until finally a combination with the sulphonate of sodium was found satisfactory. This prevented the action upon the vasomotor centre, but did not interfere in the least with its remote local action upon the kidneys. Trials on human subjects gave very constant results. Thus, with four daily doses of 15 grains, the urine of one subject rose from 1617 ccm. to 3030 ccm. and on the three following days it amounted to 2200, 2000 and 1600 ccm., respectively. Then sixty grains were again

taken, and the urine passed measured 3100 ccm. No effect whatever was produced upon the pulse, heart, appetite, digestion, or general condition, and the frequently repeated analyses of the urine showed no pathological changes. Impressed by the report, I determined to exhibit the drug to a member of my own family. Three years ago, cardiac dilatation was first discovered. There were periods of seeming good health followed by asthmatic seizures that would reduce him until he seemed at death's door. About eighteen months ago the pronounced asthmatic attacks ceased, and he was troubled merely with "shortness of breath," which, with rheumatism and indigestion, natural under the circumstances, was his only trouble. Last June, I was summoned by telegraph to his side, and found him in a partially comatose state. There was suppression of urine and decided infiltration of the abdominal walls and legs from the knee down. Lithia water, calomel, infusion of digitalis and hot baths had been ordered by his attending physician. To show his condition, I will merely state that he was not at all surprised to see me, although he had not known that I was telegraphed for. The condition was a precarious one, and something had to be done quickly. By 'phone to Richmond, I ordered a half-ounce of sodium caffeine-sulphonate, and receiving it the next morning, commenced its administration immediately, in doses of two grains every three hours. By the third day, he was up; but the application of the drug was continued thereafter in doses of three grains every six hours. A trip to the seaside further aided him, and the patient, to all appearances, is a healthy man.

I should say that in using these synthetic compounds, I never employ the doses recommended, but discount them considerably, as may be seen in the foregoing. Probably it would be well to mention that sodium caffeine-sulphonate is on the market under the name Symphorol.

1220 E. Broad St., Richmond, Va.

## *SYPHILIS OF THE NERVOUS SYSTEM\*:*

By JOHN FORD BARBOUR, M.D., Louisville, Ky.  
Neurologist to the Louisville City Hospital, etc. etc.

Case 1.—I was called to see a woman, occupation actress, who gave the history of having drunken rather freely of beer the night before. She had a febrile temperature, rather heavily coated tongue, foul breath, etc. I supposed at first that the symptoms were probably due to the beer she had taken. I called to see her the following morning; temperature one-half degree higher than previous day; pulse-rate quicker; complaining of violent headache, talking in her delirium about various and sundry things. That evening the delirium quieted, the temperature subsided and she passed a quiet night. The case rather puzzled me. I could not understand why anyone should have become so markedly delirious with so slight elevation of temperature. Then the occurrence of the delirium in the day time misled me at first. I do not remember to have seen a case of syphilis of the nervous system, where the delirium or other nervous phenomena occurred during the day. I am entirely at a loss to explain this. But I learned that she had had seven children, five of these had been miscarriages. The idea occurred to me at once that the trouble was due to syphilis. Inquiry of her husband failed to elicit any definite information as to his having had syphilis; nevertheless the fact that she had had five miscarriages, the occurrence of violent delirium with slight elevation of temperature, the woman's occupation, etc. led me to suspect that syphilis was responsible for the trouble. I began at once with ten grains of iodide of potassium in a little milk every hour, resulting in a prompt disappearance of all symptoms.

I report the case from the fact of the occurrence of delirium in the day time in-

\* Reported to the Louisville Clinical Society and contributed exclusively to the AMERICAN THERAPIST.

stead of at night, which as far as my reading goes is the universal rule.

Case 2.—A man, aged forty-five years, went home from his work one evening and sat down to blacken his shoes. His wife came in and handed him a basket, asking him to go to the grocery for something. He did not reply but stared at her blankly; "John," she said, "what is the matter, why don't you speak to me?" His only reply was the same vacant stare. He said no more for several weeks. They put him to bed, and when I arrived I found him in a semi-comatose condition. He could not speak, and there was some paralysis of the right arm. The next morning the paralysis had extended to the whole of that side. Now, paralysis developing in this way could be due only to rupture of a small blood vessel, the formation of a thrombus, or to syphilis. I inquired into the history of the patient, his brother at first denying any specific infection, but after a little thought over the matter he said he believed twenty years ago John had a chancre.

The man improved under inunctions of mercury and the very free use of iodide of potassium; after three or four weeks he began to be able to talk again. I went to see him one morning, and asked his wife if he was able to talk, and she said, yes; I asked if he was able to swear, and she replied that the first word he spoke was an oath. Now, why it is I do not know, but it is a well-known fact that when there is temporary loss of language in these cases, as the individual regains it his first inclination is to swear.

These cases serve to illustrate the great importance of prolonged treatment of syphilis. In the first case the woman was entirely ignorant of the fact that she had the disease; in the second case the man gave a very plain history of syphilis. He had been treated about three or four months until the eruption had disappeared and the chancre had healed, and the doctor said he was well. I do not believe, I have ever seen a case of nervous syphilis

that did not give about this history. The investigations of Fournier are very valuable in this connection; he shows by carefully collected statistics after active treatment extending over four years, that nervous syphilis is nineteen times rarer than it is where the treatment has lasted one year or less. Figner, the eminent specialist of Vienna, in commenting upon these statistics also calls attention to the importance of keeping these cases under treatment at least four years. Of course, it is not meant by this that the patient is to be kept under continual treatment for that length of time, but periods of six weeks treatment four times a year, and this should be continued for at least four years. When this is done the danger of syphilis attacking the nervous system is extremely rare. Of course we know that in some cases the primary symptoms are very slight, and the secondary manifestations are also slight or may be entirely absent. But it is just in these cases that treatment should be continued with periods of rest, as I have stated, for four years.

As regards the quantity of iodide of potassium required I recently read an interesting lecture by Gowers on the subject of syphilis, in which he made the remarkable statement that he believed fifteen grains of iodide of potassium three times a day would accomplish everything that could be done with this drug. Certainly this is not the experience of physicians in this city, nor has it been in my hands. It seems to be the practice of American physicians to give iodide of potassium in massive doses. I have given in one case two hundred grains at a dose three times a day. We have all seen cases where the most marked improvement followed the administration of large doses of iodide of potassium.

This also calls up the celebrated discussion brought out by Wood, of Philadelphia, on the subject of the use of iodide of potassium in suspected cases of nervous syphilis as a diagnostic agent. He made the claim that where a man could take ten

grains of iodide of potassium three times a day without producing symptoms of iodism, that it was proof positive of the existence of syphilis. I think his claim is not borne out by the experience of the vast majority of the profession. Certainly we have all observed cases non-syphilitic in origin where the patients could take ten grains of iodide of potassium without producing the slightest evidence of iodism; on the other hand, we have seen cases of undoubted syphilis that could not take ten grains three times a day. I think where there is any suspicion at all of the existence of nervous syphilis, the patient should be put upon inunctions of mercury. The most important feature, however, is to continue the treatment for a sufficient length of time. I recall the case of a policeman in this city who has had several attacks which were undoubtedly due to syphilis; he has been completely paralyzed over one-half the body and in a semi-comatose condition for days at a time. I treated him in two of these attacks, but after the symptoms had been relieved it was impossible to induce him to continue the treatment. As soon as he recovers sufficiently to get around, he will stop taking medicine in spite of everything I can do.

#### REMARKS.

Dr. Wm. Cheatham:—It has been my experience ever since I have been engaged in my special line of work, that we get better results from the inunction of mercury than by any other method; especially is this true in cerebral syphilis. The greatest objection is this uncleanness.

Dr. J. M. Krim:—I would like to ask whether the hypodermatic use of mercury, which has been practiced to some extent in Germany, is not more favorable than the inunction plan, and more rapid in effect?

Dr. J. N. Bloom:—In the first case reported by Dr. Barbour, the diagnosis does not seem to me to be perfect; the symptoms from which the woman suffered may

have been the result of her debauch. Concerning the large doses of iodide of potassium, he is perfectly right as to the difference between the sized dose in this country and in Europe; particularly is the contrast striking between this country and Germany. Forty or fifty grains of the iodide of potassium in Germany would be regarded as a very large dose. I believe in many cases we give more iodide than is necessary. I remember a case of nervous tertiary syphilis illustrating this point that I observed in the City Hospital eight years ago, and in reporting the case at that time I made the same statement. We had a case of tertiary syphilis in the Ward, the man was paralyzed, he had a tertiary syphilitic ulceration of the clavicle to the extent that the subclavian artery could be seen, and was so near the surface that a puncture of one-quarter of an inch would have perforated it. There were other ulcerations of bones. I put him on ten grains of iodide of potassium at a dose three times a day, and no other treatment. The man recovered rapidly, as far as repair could possibly take place. Cicatrization of the deep ulceration progressed rapidly and the ulcer was nearly healed when he left the Hospital.

As regards the treatment of syphilis, too little attention is paid to the individual and too much attention to rules. This statement is not original, Fournier having expressed the same view. It is impossible to formulate a set of rules by which syphilis may be treated without regard to the individual patient. Treatment will have to be varied according to the symptoms which develop in a given case. As to the time treatment should be continued: It is difficult to impress upon the patient the importance of keeping up the treatment for two years or longer. There are few who will do it. The better educated men will understand the matter, but the ordinary class of patients cannot appreciate the necessity of continued treatment after the disappearance of symptoms. Further I do not believe anyone can say positively

how long syphilis should be treated. The time must vary according to the severity of the infection. For instance cases of pustular syphilides properly treated are often followed by no further manifestations of the disease, even where treatment is discontinued after a few months.

As regards nervous syphilis: My experience bears out what Dr. Barbour has said in the main, that these cases occur most frequently where the patient has recovered (?) after three or four months mixed treatment; it rarely develops after continued treatment. A case recently came under my observation, and I think he was also seen by Dr. Cheatham, in which a man had very decided signs of nervous syphilis which developed eight or ten years after contracting the disease. After two months treatment in which the effect of drugs was wonderful, the man appeared to be all right, and in spite of all argument he has gone up to the present time without further treatment. I expect him to have a severe attack of nervous syphilis at any time.

In my opinion there is no question that the best method of administering mercury is by inunctions. This method is incomparably superior to treatment by the stomach. A great deal of the blame of faulty inunction treatment is to be laid to the physician. It is customary, when the patient applies for treatment for the physician to prescribe an ounce of mercurial ointment, the patient is told to make eight applications by inunction. In the division the patient is apt to make all sorts of mistakes, one day he will rub in a half dram, perhaps the next day a dram and a half and so on. Again we know that the ability of patients to tolerate mercury varies considerably. If we give the protoiodide of mercury, one patient may take  $\frac{1}{6}$  of a grain three times a day and will develop ptyalism, diarrhea, mushy gums, etc., and we will have to diminish the dose. In another case, we may give  $\frac{1}{2}$  grain three times a day without the production of any of these symptoms. It is my practice

to begin inunctions in these cases by giving 18 grammes of unguent. hydrarg., U. S. P., divided into six papers, one paper to be used daily. At the end of the first week, if the patient has developed no symptoms from the mercury, I increase the quantity quickly or gradually according to the urgency of the case, so when I am giving four grams, or if necessary five grams daily, I am giving an unusually large quantity. I have the patient take inunctions in this manner for six consecutive days, then rest the seventh day and take a bath. I have the patient rub the mercury in at different places on the body, and to facilitate absorption I advise him to keep on the same underclothing at night. Formerly it was considered that the iodides were specifics in the treatment of late syphilis; it is true that the iodides do cause a disappearance of the symptoms, but for the permanent cure of the disease the mixed treatment is an absolute necessity.

To refer again to the iodide of potassium treatment, I am certain that I have gotten beneficial effects by rapidly increasing the quantity of iodide of potassium to as high as two-hundred-and-fifty grains three times a day, making a total of seven-hundred-and-fifty grains a day. Some years ago, Drs. Chopp and Chotzen, two men of considerable prominence in Breslau, believed that iodide of potassium in very large doses would cure psoriasis and they had no hesitancy in running the dose up to  $1\frac{1}{2}$  ounces three times a day. During the course of their investigations, they had occasion to examine the blood and found no diminution of the red blood corpuscles and no change in the blood of any importance. They established the fact that there is no danger as far as the general effect is concerned, whether we give a man three-hundred grains or ten grains of iodide of potassium three times a day. Iodism is no more severe when you give one-hundred-and-fifty grains than when you give ten grains. I am now treating a woman for syphilis; she has

been under treatment four weeks and is taking fifty grains of iodide of potassium three times a day. There has not been the first symptom of iodism either on the skin or mucous membrane. Improvement has been marked.

As regards the injection of mercury: We must consider mercury in two forms, soluble and insoluble. The more usual soluble forms are bichloride and cyanide. I do not believe the bichloride is ever indicated in the treatment of syphilis. Undoubtedly good effects have been produced by the injection of the insoluble forms, the chloride or yellow oxide, but there is danger in this inasmuch as we make a depot of mercury under the skin where we cannot get at it, where we can do little to prevent severe forms of mercurial poisoning. I believe that inunction is the most practical and the method that promises the best results; next to this comes the injection of mercury, either the yellow oxide or calomel.

If a man is doing well and has been taking mercury continuously for four or five months without the recurrence of any of the symptoms of syphilis, I think it about time to give him a rest. I am treating a man now who has been under my care for twenty months; for six months he has had no symptoms. I have been varying the treatment with mercury and iodide of potassium. He is a travelling man, and came in from a trip yesterday. For the last month he has been taking iodide of potassium, thirty drops at a dose of the saturated solution. He will be in again tomorrow when I shall determine what treatment is to be pursued for the next month. At the end of two years if no further symptoms have developed I shall regard the case as cured.

Dr. Ewing Marshall:—I have had a case of nervous syphilis under observation for nine years. I have tried mercury a number of times but it cannot be persevered in as it produces the most distressing symptoms. Twenty-five to forty drops of the saturated solution of iodide of potas-

sium will relieve the symptoms very promptly. When I first took charge of the case the patient had paralysis of the right upper extremity, which yielded readily to the iodide of potassium. The only reason I mention the case is to speak of the fact that she is unable to tolerate mercury in any form.

Dr. John Ford Barbour:—In reply to Krim's question about the hypodermatic use of mercury in the treatment of syphilis: Dr. Bloom has answered quite fully. A year ago Dr. Jos. Wood reviewed the subject thoroughly in an article published in the *Therapeutic Gazette* in which he showed that the hypodermatic method had no advantages over the treatment by inunction. In one of Gowers' lectures the following statement is made, which, if true, is very important; *i. e.* that in six weeks' use of the iodide of potassium, the germs (?) of syphilis became immune to it, and after that it has no further effect; consequently in the treatment of syphilis iodide of potassium should never be given longer than six weeks; then there should follow a like period of rest; when the treatment may be re-instituted. During the second six weeks you may use some other form of treatment, and during that time the germs regain their susceptibility to the influence of iodide of potassium, which may then be resumed.

In the use of iodide of potassium I have had this experience, that iodism is often produced by moderate doses and when the quantity is increased the symptoms of iodism will disappear. For instance, a patient taking thirty grains has marked iodism; when the quantity is increased to one hundred and fifty grains, the symptoms of iodism disappear.

Dr. I. N. Bloom:—I never could understand why the profession found it necessary to *gradually* increase the amount of iodide of potassium given. If I had occasion to treat a patient, and judged from the symptoms and conditions present that he required two hundred grains of iodide of potassium, I would begin with this quantity. I could never comprehend why doctors will begin with thirty drops of the saturated solution, increasing two drops daily, etc. I have never seen a case of œdema of the glottis produced by iodide of potassium.

**CARDIAC THERAPEUTICS.**—One of the most powerful cardiac stimulants is strychnia. Dr. Wm. C. Krauss says in the *Therapeutic Gazette* that it strengthens the heart directly through the vagi, indirectly through improved muscular tonicity, the result of increased activity of the digestive organs.

Strychnia is especially indicated in the weak heart of pneumonia and the febrile processes generally. It should be given hypodermically in  $\frac{1}{100}$  to  $\frac{1}{50}$  grain doses, repeated until some sign of the action of the drug is manifested. It is useful in chloroform poisoning, in surgical shock.

Strophanthus is another rival of digitalis. In the progressive heart failure of old people it acts well; in angina pectoris and in tachycardia. In asthma it acts on the unimpaired cardiac muscle. Parenchymatous nephritis is benefited by it. As a cardiac sedative in exophthalmic goitre it is especially useful.

The two drugs, strychnia and strophanthus, will probably retain their supremacy in cardiac therapeutics.—*Maryl. Medical Journal.*

**LYSOL IN OBSTETRICS.**—C. M. Groth (*Svenska läk. förhand*, p. 20, 1895) gives the statistics of the Southern Lying-in Hospital of Stockholm, where, since the last death from puerperal fever, 4000 women have been delivered, the conditions leaving nothing to be desired.

For the past few years the strongest solution of lysol, the antiseptic which was used, has been 1 per cent. externally and 0.5 per cent. for injections. The students in midwifery pay great attention to the study of external manipulation in order to restrict as much as possible internal manœuvres. Forceps were applied on account of insufficient labor-pains before the introduction of antiseptics, 24 times in 1000 cases; after the introduction of antiseptics, 18 times per 1000; during the first year in which lysol was used, 5 times; during the past two years, 12 times per 1000.—*Universal Medical Journal.*

# THE AMERICAN THERAPIST.

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WITH PRACTICAL SUGGESTIONS RELATING TO THE  
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JOHN AULDE, M. D., - - - - - EDITOR.

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## Editorial.

### FUNCTION OF THE BROMIDES.

Ten years ago, and previously, Professor BARTHOLOW taught that the bromides exercised a most important function in relieving uterine affections, owing to the fact, as he reasoned, that they lessened the flow of blood to the uterus and its appendages. It was his belief that in nearly all cases of this character there was more or less congestion and a remedy which would thus influence the blood supply must of necessity be of service in relieving the engorgement. Indeed, Bartholow was not the only clinician who taught that uterine disease was due to "engorgement." At that time this questionable theory was generally accepted as a rational explanation of medicinal action, but with the light thrown upon this pathological condition, it must be regarded to-day as most irrational. While admitting that this "engorgement" was usually present, it does not follow that a lessened blood supply would be productive of good results, because the increased blood supply becomes an important factor in restoring normal functioning. In those days, however, it was the rule to stand upon clinical results, letting theories take care of themselves, and as a consequence, thousands of cases

of "uterine engorgement" were treated upon this principle, and no doubt many of them recovered; but it remains for the modern physician to explode this fallacious notion, explaining at the same time the true function of the bromides, not only in the treatment of uterine affections, but also the general principles which should guide the clinician in the administration of these remedies, and this question the writer purposes briefly to consider from the rational standpoint.

In support of the above mentioned theory there is but one physiological fact which can be adduced, namely, that the administration of bromides in medicinal doses results in a more equable distribution of the blood; but this in itself is not sufficient to account for the beneficial action of a remedy whose general effect upon the vitality of the patient is so markedly depressant. Patients taking bromides for any considerable time, even in small or moderate dosage, not only suffer from derangements of digestion, but there is a markedly debilitating effect produced upon the general nervous system. It is, therefore, not a reasonable supposition that disease may be caused to disappear through the instrumentality of starvation. This brings us to a consideration of the influence exercised by a hitherto overlooked factor, namely, that of cellular activity, which supplies us with a rational explanation of the whole matter. In addition to the effect of the bromides upon the vascular system, we know that these remedies relieve pain, through their influence upon the nerve centres, the nerve trunks and also the terminal filaments; in other words, they allay the pain brought about by the engorgement, which is Nature's method of attempting to remedy diseased conditions by sending an increased blood supply to the parts affected. Pain being relieved, the cells composing the structures involved, automatically go about their work, discharging *effete* products, taking from the now equalized circulation the needed pabulum for the re-



storation of function. Although the bromides are equally effective in other conditions than that described, we have no more conspicuous illustration of their practical adaptation to the relief and cure of disease. True, the bromides do not always cure uterine affections, but they will most surely allay pain, and thus contribute materially towards recovery from that condition heretofore recognized as "uterine engorgement."

Nevertheless, after what has been said, it must be regarded as exceedingly unfortunate that this class of cases is gradually but surely slipping away from the general practitioner, principally because he has depended too much upon the teachings of those who would make clinical facts take precedence over scientific facts. Dependence upon the bromides alone in this class of cases has undoubtedly resulted in the necessity for the adoption of surgical measures for relief, because, from the foregoing, it will be more than patent that the influence of bromides is comparatively limited. In the first place, the bromides derange digestion, always an important factor in recovery from any disease. In the second place, they debilitate the patient, owing to the constant depressant action upon the nervous system. And in the third place, they increase rather than diminish the natural despondency which attends all manifestations of disorder affecting the genital functions.

To use the bromides successfully for the relief of uterine disorders requires not only a nicety in discrimination, but the physician must take a broad and comprehensive view of the general pathological conditions which are usually concomitants. More especially must he take into account the functional activity of the cells composing the diseased structures, and every precaution should be adopted with a view to augment rather than to diminish the normal functioning. Not only should a general survey of the hygienic and dietetic condition of the patient be taken into account, but the physical condition

and general vitality must be observed, and no effort should be spared to put the patient in the best condition possible to resist disease and untoward influences. Another and yet more important factor to be borne in mind is, the truth that many of these patients who seem to demand the administration of bromides really require a method of treatment having for its object the elimination of *effete* products. They suffer from defective assimilation and faulty elimination, and the administration of bromides but adds to the trouble, although it may mask it for a time.

#### ALKALOIDAL THERAPEUTICS.

The time has now arrived, when the value of alkaloids in the treatment of diseased conditions must be recognized by the general practitioner, hence a few words on the physiological basis of alkaloidal therapeutics will be appropriate and timely.

Experimental physiologists teach us that alkaloids produce, when administered to animals, certain manifestations—physical manifestations, because they are unable to estimate the influences produced upon the cerebral functions (mind or instinct)—and their reports have been very generally accepted as the "physiological actions" of the particular alkaloid under consideration. It has not occurred either to the physiologists or to their followers that these so-called physiological actions are more closely identified with pathology than with physiology. Indeed, the pathological record, in many instances, forms the basis of scientific medication. Thus strychnine, caffeine, morphine, aconitine and atropine are universally recognized as deadly poisons, and yet the physician would be seriously handicapped in his daily work without them. Notwithstanding their deadly properties, he employs them in medicinal doses, not only without danger, but with most happy effects even to the point of administering them in true physiological doses to counteract pathological conditions identical with those

produced by the remedy when administered in lethal doses, or in short, the very conditions termed *physiological* effects by the experimental investigator.

The writer has frequently called attention to the fact that physiological medication, as usually practiced, is nothing more than mechanical medication, but with the modern followers of BURGGREVE, a dash of scientific precision has been injected into alkaloidal therapeutics. The plan now adopted consists in giving the indicated remedy in small doses at short intervals until the desired effects are obtained, which is far better than to create at once a pathological condition by the administration of a single large dose.

But is this all there is to be said from a modern standpoint on the subject of alkaloidal therapeutics? To this we must reply, that the question has just been opened. Alkaloidal medication is a subject too vast to be disposed of in a single short article, but there is one significant point not hitherto considered in the exhibition of these "arms of precision."

For example, it has been demonstrated that normal blood contains more or less of a ferment, a substance whose properties have not yet been fully demonstrated, although it is assumed that its presence aids in maintaining that fluid in a healthy condition. When these alkaloids and salts of alkaloids are dissolved and taken into the blood, the various chemicals of which they are composed,—C. H. O. N., must exercise an important effect upon this ferment substance. Although the chemicals themselves are not foreign to the organism, they evidently produce sufficient change in normal conditions to warrant further investigation. It is but reasonable to assume that Nature rebels against their artificial introduction, hence the increased oxidation, which is but another name for cellular activity, and we look forward to the time when alkaloidal therapy shall be accepted as the hand-maiden and exponent of cellular therapy.

#### *FATTY HEART—A REMEDY.*

A distinction must always be made between fatty heart and fatty degeneration of the heart, although it must be evident to those familiar with the physical changes occurring in cardiac disorders that the former gradually, but certainly, lapses into the latter. Fatty heart is nothing more than an abnormal accumulation of fat in the cardiac structures, crowding the muscular fibres until they become so enfeebled that they cease to functionate properly. The physical signs are apparent to the practiced ear, and taking into consideration the general appearance of the subject, fatty heart may be readily determined by an examination of the pulse. Usually, the pulse is small, compressible and occasionally intermits; for the most part, it is fairly regular as to rhythm, now and then running fast or slow with the least excitement. Placing the ear over the cardiac area, we observe a feeble first, and accentuated second sound, and generally, this tendency to alteration in rhythm. The patient has fatty heart, but unlike cases of fatty degeneration of the heart, the subject may be wholly unconscious of the defect. As a general rule, he will admit only that he is a trifle "short winded" on exertion, but there is an absence of pain and no perceptible derangement of the circulation. On the other hand, fatty degeneration is always indicated by pain, which occurs in paroxysms, amounting at times to syncope, and an examination of the superficial arteries shows that they follow a tortuous course, thus interfering with the blood supply to the tissues; for the conditions found superficially are identical with those which obtain in the more deeply situated arteries. Fatty degeneration is, therefore, marked by well known constitutional symptoms, although, frequently the most careful examination will fail to discover any marked physical signs of physical degeneration, except that the heart-beat resembles the sound produced by a mechanical instrument, as for example, the tick of a watch. In ad-

dition to this, however, the cardiac action is slightly labored, with a feeble first, and accentuated second sound, resembling in this respect the conditions noted in fatty heart. On making a comparison of the subjects affected by these two maladies, however, there is marked contrast. Those suffering from fatty degeneration are thin and "flabby," while those suffering from an accumulation of fat in the organ are generally robust and stout, although, as previously intimated, this condition too often lapses into fatty degeneration, the patients becoming debilitated from digestive disorders, when the flesh becomes soft and flabby. On *post mortem* examination the distinguishing feature of fatty degeneration is discovered in the cardiac muscle, which contains small oil globules at the intersections of the striated portions instead of healthy tissue. Other symptoms might be described, but the above will be sufficient for present purposes.

The most effective remedy for fatty heart is prophylaxis, and this may be secured by proper attention to diet and hygienic measures; but as the physician seldom sees a patient in the early stages, or overlooks the predisposition to degenerative changes in patients who only consult him at irregular intervals, it is of importance to determine an efficient remedy when the symptoms are first brought to his attention for correction. A number of remedies have been brought to the notice of the profession for the purpose of correcting this malady, but even now the deaths from cardiac failure are far too frequent and numerous to warrant us in deciding that treatment has attained perfection. Unfortunately, digitalis has not been displaced from the armamentarium of the general practitioner, a remedy which is generally contra-indicated, owing to its action upon the arterial system. By the administration of digitalis, extra work is thrown upon the cardiac muscle, already in an enfeebled condition, and while the patient may show evident signs of improvement during the early treatment,

there comes a time when, through paralyzation of the cardiac ganglia, digitalis and its derivatives do irreparable harm. Cactus grandiflora and its glucoside, cactin, have been highly recommended; arsenic is extolled by some; but so far, no remedy has proven so useful as strychnine or some of its numerous salts. Still, the salts of strychnine do not fully meet the difficulty, for the reason that even in medicinal doses many patients are unable to bear them for any considerable length of time, when they must be temporarily discontinued. A combination of strychnine and arsenic is an ideal remedy, and is found in strychnine arsenite, the dose of which may be proportioned to suit the demands of the patients. This combination has the added advantage of being indicated from a physiological standpoint, although originally strongly advocated by Dr. BURGGREVE, the originator of Dosimetry, on purely empirical grounds. The dose ranges from one one-hundredth to one-thirtieth of a grain every four hours. Clinical reports are solicited on this comparatively new remedy.

#### EDITORIAL NOTES.

**MASTURBATION A CAUSE OF GOITRE.**—The editor has received a communication from Dr. R. E. Buchanan, of Independence, Iowa, requesting an opinion as to what influence, if any, masturbation has upon the development of exophthalmic goitre, or ordinary goitre. He says:

"My case which was reported in THE AMERICAN THERAPIST for June, 1895, which I think was the first treated, still remains well so far as the goitre is concerned, but during the early autumn she began to show signs of mental derangement. She then confessed having been a masturbator since childhood, but said she had not practiced while under treatment with nuclein solution, although she had commenced again a short time before I was consulted for the mental trouble. I then put the patient on anemonin, which benefited her to that extent that she was almost herself again.

"It was with much gratification that I read Dr. John E. Bacn's report of a case of exophthalmic goitre treated (cured) with nuclein solution (AMERICAN THERAPIST, December, 1895). With these two cases in mind, and what I have learned from other sources, I am of opinion that if masturbation or some other irritation or derangement of the genital organs is not the cause, it is at least an etiological factor in both exophthalmic and common goitre."

The above suggestion is thrown out to the profession with the hope that others having experience in this direction may be sufficiently interested in the matter to report their beliefs, estimated from clinical observation and experience.

THE JOURNAL OF EXPERIMENTAL MEDICINE.—Messrs. D. Appleton & Co., announce the early appearance of a periodical with the above name, to be devoted to original investigations in physiology, bacteriology, pharmacology, physiological chemistry, hygiene and practical medicine. Dr. William H. Welch, of Johns Hopkins University, will act as editor and will have the assistance of a number of prominent investigators in the different departments. For the present, the journal will appear quarterly, or oftener, should the material furnished be sufficient to warrant more frequent publication.

THE COLLEGE AND CLINICAL RECORD.—The announcement is made that the above journal will hereafter be known as "*Dunlison's College and Clinical Record: A monthly journal of practical medicine.*" This journal has long been a favorite with the graduates of the Jefferson Medical College, and its talented editor has endeavored to make its contents of practical interest and beneficial to its readers. The editor of THE AMERICAN THERAPIST feels under obligations for the republication in its columns of a number of his literary productions during the past few years, and trusts that, under the new name, its progress will continue, adding to the editor not only reputation but shekels.

CLEVELAND JOURNAL OF MEDICINE.—This is the name of the successor to the *Western Reserve Medical Journal*, the first copy of which has been duly received. It is offered as the official organ of the Cleveland Medical Society, is edited by Dr. Henry S. Upson and Dr. P. Maxwell Foshay, and no doubt it will prove an acceptable addition to current medical literature.

PEDIATRICS.—*Pediatrics* is a new journal devoted exclusively, as its name implies, to the consideration of diseases of children. It is owned by Dr. Dillon Brown, of New York, and edited by Dr. George Carpenter, of London, published by the Van Publishing Co., 1432 Broadway, New York. The first number of this journal contains several exceedingly interesting and instructive papers, together with a condensed abstract of society reports, practical notes, an editorial by Dr. Manges on gastrointestinal diseases in children, and miscellaneous items of general interest.

THE MEDICAL NEWS.—This well-known publication has been removed to New York City and the editorial management will be in charge of Dr. J. Riddle Goffe. This change has been determined upon by the publishers solely for business reasons, and while the writer regrets the loss of the journal to the medical fraternity of Philadelphia, he extends to it and to the new editor his warmest congratulations and best wishes. For the past fourteen years the writer has been a regular subscriber to the *Medical News* and has been interested in the peculiar changes that have occurred in its editorial management during that time; notwithstanding the peculiar tenets held by the different editors, the *News* has undoubtedly made many firm friends among the profession. Still, we regret to see the journal carted off to New York, because it is less likely to maintain its firm hold upon the local profession in Philadelphia and vicinity. The first issue under the management of the new editor has just reached our table and presents a creditable appearance.

## Current Literature.

**A NEW NASAL TABLET.**—Dr. Murray McFarlane of Toronto having become dissatisfied with the Seiler's and Dobell's solutions as being too irritating in the majority of cases, has used with success a tablet containing the soluble salts of the blood plasma, which when added to two ounces of lukewarm water, forms a solution like blood plasma. Each tablet contains  $\frac{1}{10}$  of a grain of menthol.—*Maryl. Med. Journal.*

**THIOL SUCCEEDS WHERE OTHERS FAIL.**—Heller (*Dermatologische Zeitschrift*, Band 11, Heft 5) reports his experience with thiol in the treatment of various diseases of the skin. Employed in seventy cases of eczema of various forms and degrees of severity, good results were, in general, obtained. The best results were noticed in those cases in which other treatment had already been used. In seborrheic eczema a 10-per-cent. ointment proved serviceable. The drug was employed only in the liquid form, either in watery solution, one to three or five of water; or, where fats seemed to be indicated, in a 5- to 20-per-cent. ointment. In a case of herpes zoster in a boy, applications of thiol gave great relief to the pain, but employed in a second case it was without result. In burns it proved to be in no respect superior to the usual remedies. In two cases of acne necrotica its use was followed by satisfactory results. The keratoplastic properties of thiol make it a useful remedy in the treatment of chronic ulcers of the leg, and in two cases in which it was used it seemed to be better borne than any other remedy. As a remedy against itching it proved to be of great service, being especially useful in pruritus ani and in pruritus vulvæ. In parasitic diseases it was also effective. In the author's opinion there are many other remedies which, in most cases, are quite as effective as thiol, but in a few cases this remedy will be found to succeed where others fail.—*Univ. Med. Magazine.*

**THE THERAPEUTIC ACTION OF IRON.**—E. Reinert (*Wiener medicin. Blätter*, April 25th) criticises the theories advanced at the recent Kongress für innere Medizin, held at Munich, by Bunge, who made experiments by giving inorganic preparations of iron to animals, and found that it reappeared *in toto* in the feces. If organic preparations were used they were absorbed, but he doubted if they were assimilated. He therefore came to the startling conclusion that the results of treatment by iron must be referred to the domain of suggestion, and would substitute a diet rich in iron, particularly meat, eggs, spinach, etc., for the usual method of administration. Reinert advances the following facts against these conclusions:

(1) *A priori* we should expect a difference in relation to the absorption and assimilation of iron between a healthy and a chlorotic subject, where much of the normal iron is lost with the hemoglobin, and Reinert is not acquainted with an idiopathic chlorosis in the animals experimented on analogous to that occurring in man.

(2) Bunge's experiments were all made on animals, and he neglects those made by others on the human subject. In the Tübingen Clinic experiments were made with chlorotic girls, who were placed for weeks under the best hygienic surroundings, with excellent food and plenty of rest in bed, but only had a quinine mixture for medicine. The percentage of hemoglobin in the blood rose very little in several weeks. When, however, an organic iron (Blaud's pills) was given, the percentage rose rapidly. Similar experiments with like results have been made by Von Ziemssen.

(3) The part played by other therapeutic factors in the treatment of chlorosis is doubtful, but out-patients usually quickly recover when iron is given (unless the hemoglobin has fallen below 40 per cent. of the normal) while pursuing their usual callings, and without special change of diet.

(4) The diagnosis of chlorosis must always rest on an examination of the blood. Omission to do this accounts for some apparent failures in cases treated by iron.

(5) Lastly, all so-called specifics, for example, mercury or quinine, fail in isolated cases.—*University Medical Magazine*.

To the foregoing may be appropriately added the following instructive observation. On page 340 of Prof. Schmiedeberg's (Strassburg) "*Arzneimittellehre*" (latest edition, 1895) this eminent pharmacologist, in proving absorption and assimilation of organic iron products, states.

"The fact and effect of a craving for iron (*Eisenhunger*) can be experimentally proved on animals.—A strong, frisky dog, after a moderate loss of blood, was fed for five months on pure milk only, and gradually became so weak that he refused further nourishment, became reduced in body weight, tottered when on his legs, and finally was at the point of death. At this stage 1 gramme of ferratin was added to the milk per day; the dog ate this with ravenous appetite, and within 14 days had regained his weight and general condition to nearly equal the normal strength and activity possessed before commencement of the experiment."

Reinert's experiments proved that Bland's pills rapidly increased the hemoglobin; he did not try, or at least does not report on, ferratin. Banholzer, of Eichhorst's clinic in Basel (see Sajous' Annual, vol. V, 1895) says: "When compared with Bland's pills, which also gave good results, ferratin was found to lead to a greater increase in hemoglobin." Such is also the testimony of Jaquet, Germain Sée, Marfori, De Filippi, Vay, and other authorities.

**NITROGLYCERIN.**—Some eighteen or twenty years ago, says Dr. S. Solis-Cohen editorially in the Philadelphia *Polyclinic* (Jan. 18, 1896), when Professor Roberts Bartholow was preaching the use of nitroglycerin in various conditions of disturbed circulation, especially those in which it was desired to relieve the heart of opposing

pressure in the terminals of the arterial channel, or to overcome pathologic contraction of those terminals for the purpose of securing better nutrition of the territory supplied by them, there were few practising physicians that gave assent to those teachings. To-day, in the United States at least, the practice has become widespread, owing largely to the persistency and clearness with which the great teacher referred to continued to impress his opinions upon successive classes and the good results of their application in practice. In a mechanism which depends for its continuous and regular play upon the adjustment between opposing forces, disturbance in the relative power of these forces means widespread disturbance throughout the whole mechanism. The physiologic mechanism of circulation depends largely for proper performance of its function upon the maintenance of balanced relation between the energy of the cardiac contraction and the blood pressure in the arteries; while the blood-pressure itself is made up of various factors, one of which is the caliber of the various arteries, and another is the relation between the respective calibers of successive divisions of the arterial tree. Hence it is that undue contraction of terminal arterioles and of capillaries, whether due to spasm, to thickening of the walls, or to other pathologic conditions, disturbs circulation not only in the part affected but throughout the entire organism, and necessarily deranges the action of the heart. Nitroglycerin, by its relaxing effect, either upon the vessels implicated or upon communicating vessels facilitating a collateral circulation, overcomes this disturbance. Hence, aches and pains in various portions of the body, faintness, vertigo, dyspnea, insufficient flow of urine, local malnutrition due to insufficient blood-supply to certain parts, or to all parts, may often be relieved by the exhibition of this drug in proper dosage and at proper times. Perhaps in affections having a spasmodic element, as angina pectoris

and asthma, the power of the nitrites, with which nitroglycerin, therapeutically though not chemically, belongs, is most strikingly manifested; yet the drug is of great benefit in many cases devoid of spasm or other neurotic factor or complication.

It is an excellent stimulant in syncope, in threatening heart failure, or collapse from various causes; in acute lobar pneumonia, used early enough and boldly enough, it may render venesection unnecessary, and its skillful use often aids recovery from apparently desperate conditions. It is useful in chronic interstitial nephritis, in conditions of arterial fibrosis and atheroma, in gout and rheumatoid arthritis, and sometimes in anemia, chlorosis, and the anemia of tuberculosis. In the management of cases of muscular and valvular disease of the heart, it finds a wide field of usefulness; in dilatation it may be used with digitalis; in fatty heart, it may be used without other drug; in cases of mitral lesion, it may be conjoined with digitalis, strophanthus, spartein, and the like; in cases of aortic lesion, atropin, strychnin and caffein may be used with it. The advantage of combinations of drugs in the treatment of valvular disease is due to mutual modifications, and when the combination is made with good judgment, having regard to the special conditions of the individual case, the results are often better than when a single drug is used.

**A NEW HEALING SERUM.**—Dr. Marmorek, a young physician of Vienna, after four years of bacteriological research, has succeeded in cultivating a healing serum that is not only efficacious in the cure of erysipelas, but is equally so in infectious connective-tissue inflammations, infectious bronchitis, and even in puerperal fever. The serum is a product of the streptococcus, cultivated along the same lines as the antitoxin for diphtheria. The investigations have been made in the Pasteur Institute in Paris, and have been ob-

served with great satisfaction by some of the leading physicians of that city, among whom are Drs. Chautemesse, Bar, Cuffer, Sevestre, Pozzi, and Dieulafoy. Dr. Marmorek is quite satisfied with the results of the injection of this serum, but believes they are more particularly promising in post-mortem wounds and those infectious punctures so often received in surgical operations. This serum in the hands of Dr. Chautemesse gives, for erysipelas, a mortality of 2.59 per cent. based upon 500 cases, as against 3.79 per cent. for 554 patients treated by the most approved methods without serum injections. The general condition improves some hours after the operation; nervous manifestations and especially the delirium are very favorably influenced.—*Medical Record.*

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## Book Notices.

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**COLOR - VISION AND COLOR - BLINDNESS.** A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS, M.D. (Univ. Penna.), formerly Clinical Assistant Royal London Ophthalmic Hospital (Moorfields); Lecturer on Ophthalmoscopy and Chief of the Eye Clinic in Beaumont Hospital Medical College; Ophthalmic and Aural Surgeon to the St. Louis Mullanphy and Methodist Deaconess Hospitals; Consulting Oculist to the Missouri, Kansas, and Texas Railway System; Fellow of the British Laryngological and Rhinological Association; Secretary of the St. Louis Medical Society. Illustrated with 1 colored full-page plate and 21 photo-engravings. Crown octavo, 110 pages. Cloth, \$1.00 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This handsome little volume treats exhaustively a subject of extreme importance, and will prove of practical value not only to the thousands of railroad surgeons in this country, who may be called on to utilize the knowledge herein gathered and lucidly expounded, but to every physician in active general practice. Color-blindness in railroad employés constitutes a

danger of such apparent serious possibilities that everybody has been made aware of it by the constant reference to it in the press; this practical work treats the subject completely and will afford the reader a perfect understanding of every phase of the subject. Methods for detecting color-blindness are described in detail, and tests of all kinds, as utilized in the railway service, are furnished. The illustrations are excellent. A list of publications on the subject is appended to enable the reader to refer to all authorities. A comprehensive index makes the book convenient for reference. It is printed and bound in the highest perfection of the book-maker's art.

**PRINCIPLES OF SURGERY.** By N. SENN, M.D., Ph.D., LL.D., Professor of Practice of Surgery and Clinical Surgery in Rush Medical College, Chicago; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon to the Presbyterian Hospital; Surgeon-in-Chief to St. Joseph's Hospital; Ex-President American Surgical Association, etc., etc. Second edition. Thoroughly revised. Illustrated with 178 wood-engravings and 5 colored plates. Royal octavo, pages xvi, 656. Extra cloth, \$4.50 net; Sheep or Half-Russia, \$5.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

The first edition of this work, published five years ago, was received by the profession with grateful appreciation; it was recognized as a practical epitome of the subject, and has been adopted very generally as a favorite text-book in medical schools. This new edition was made necessary by the notable advances in the science, and that the author has utilized all the material and brought the work up to date is shown by the fact that the book has been considerably increased in size, over 50 new illustrations are added, and the details of operations are more carefully presented.

The subject-matter includes: Regeneration, regeneration of different tissues, inflammation, pathogenic bacteria, necrosis,

suppuration, suppurative osteomyelitis, suppuration in large cavities, abscess of internal organs, ulcers and fistula, septicemia, pyemia, erysipelas, tetanus, hydrophobia, surgical tuberculosis, tuberculosis of lymphatic glands, peritoneum, bones and joints, tendon-sheaths, etc., actinomycosis hominis, anthrax, glanders, etc. A great deal of very valuable new material on the above and other subjects has been incorporated in this new edition, greatly enhancing its practical value.

Those familiar with and possessing a copy of the first edition should not hesitate to procure the new volume at once; and every practitioner, whether occasionally or not at all performing surgical operations, should add this volume to his library to make it complete.

**DR. KING'S MEDICAL PRESCRIPTIONS.** Containing the favorite formulas of the most eminent medical authorities, collected from their published writings. By JOHN H. KING, M.D. Second edition; 8vo., 346 pages. New York: Bailey & Fairchild Co., Publishers, 19 Barclay Street.

A book of many excellent features and containing much of practical value; not intended only for the use of the profession, but compiled and arranged rather for the guidance of "the general masses of our people." The author evidently appreciates that the people will employ household remedies to relieve minor ailments or the incipient stages of disease, and he has industriously gathered together good material to aid them in making the best of a poor job.

The book opens with a good common-sense essay (of 10 pages) on hygiene, sleeping, dressing, fevers, etc.; then follow the prescriptions under an alphabetical arrangement of the affections to be combated. The prescriptions are taken, as the title states, from the medical press and books of authors on medical subjects; they are such formulas and recommendations as some medical journals publish regularly—to fill space or to help some of



their readers, and as one might clip here and there and gather together in a scrap book; they are mostly good, and compiled in a neat, substantial volume, with a good index, they may be worth having for reference.

We take this occasion to inform our readers, that the publishers, Bailey & Fairchild Co., of New York, have lately issued quite a number of good books, and it may lead to satisfactory purchases to write them for their catalogue.

### PAMPHLETS RECEIVED.

Practical Urethroscopy. By H. R. WOSSIDLO, M.D., of Berlin, Germany. Reprint, 1895.

Urethroscopy in Chronic Urethritis. The Largest Catheter Always. By FERD. C. VALENTINE, M.D., of New York. Reprint, 1895.

Degenerative Heredity; or, Some Degenerative Influences of Modern Civilization upon Health. By CHARLES DENISON, M.D., of Denver, Colo. Reprint, 1895.

From MERRILL RICKETS, M.D., of Cincinnati, O.: 1. Modern Surgery of Serous Cavities; 2. Brain Surgery for Epilepsy; 3. Neuralgia of the Fifth Nerve—Treatment; and 4. Rupture of Left Lateral Ventricle. Reprints, 1895.

Bio-chemistry in its Relation to Nervous Diseases. By G. W. McCASKEY, M.D., of Fort Wayne, Ind. Reprint, 1895.

Auscultatory Percussion and Allied Methods of Physical Diagnosis. By A. L. BENEDICT, M.D., of Buffalo, N. Y. Reprint, 1895.

Metatarsalgia: Its Causes, Symptoms, and Treatment; with Illustrative Cases and Bibliography. By THOMAS S. K. MORTON, M.D., of Philadelphia. Second edition, 36 pages. 1895. (Copy can be had on request from the author.)

Medical Declaration Concerning Chastity. Issued by the Social Purity Alliance of Philadelphia. Mrs. H. L. CHILD, Secretary. 1895.

Craniectomy—An Improved Technique. By A. H. MEISENBACH, M.D., of St. Louis. Reprint, 1895.

Removal of Ingrowing Toe-nail.—A simplified operation by means of a new instrument. By A. H. MEISENBACH, M.D., of St. Louis. Reprint, 1895.

Traumatic Separation (compound), of the lower epiphysis of the femur. By A. H. MEISENBACH, M.D., of St. Louis. Reprint, 1895.

Fever in the Course of Bright's Disease and in Uremia. By ALFRED STENGEL, M.D., of Philadelphia. Reprint, 1895.

Nature, Diagnosis and Treatment of Pernicious Anemia. By ALFRED STENGEL, M.D., of Philadelphia. Reprint, 1895.

Cylindroids in the Urine and their Significance. By ALFRED STENGEL, M.D., of Philadelphia. Reprint, 1895.

P. BLAKISTON, SON & Co., of Philadelphia, announce a book on "Appendicitis," by JOHN B. DEEVER, M.D., Assistant Professor of Applied Anatomy, University of Pennsylvania; Assistant Surgeon to the German Hospital, etc. The book will be arranged in a practical and systematic manner. The History, Etiology, Symptoms, Diagnosis, Operative Treatment, Prognosis, and Complications of this disease will be given in the order named. It will contain about forty illustrations of methods of procedure in operating, and typical pathological conditions of the Appendix, the latter being printed in colors.

THE INTERNATIONAL ANNUAL.—As a work of reference the *International Annual* for 1896 promises to surpass any previous edition. The editorial staff includes the names of well-known authorities on both sides of the Atlantic, selected with special reference to their ability for summing up the information and utility of the various methods of treatment recommended during the year. Like previous issues, this work must prove especially valuable to all who desire to keep pace with the advancement of medical science, but it will prove particularly acceptable to those who do not regularly read the current issues of the different medical journals. The publisher, Mr. E. B. Treat, of New York, announces that it will be handsomely illustrated by colored plates and photograph illustrations in black and white.

COMMERCIAL RIVALRY IN A NEW GUISE.—Funk & Wagnalls Co., of New York, publishers of the *Standard Dictionary*, a work which has received flattering commendation at the hands of editors throughout the country, complain that their British competitors have taken an unfair advantage of them by the publication of certain definitions appearing in that excellent work. It seems that these competitors have selected 18 words from amongst the entire 300,000 words defined and are distributing their circulars containing them together with the definition among teachers, school trustees and parents, with the result, say the publishers, that it will stir up a filthy agitation. Now, it is to be regretted that our friends across the water have been guilty of this irregular practice, since it can but react against them and their legitimate work. They will learn, sooner or later, that the American people are not kindly disposed towards those who deem it wise or expedient to arouse porcine pruriency in the minds either of the rising generation or in those whose mental calibre is a trifle below par, and we need but mention the fact to have such conduct condemned.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATES.*

(SIXTH PAPER.)

By SAMUEL S. WALLIAN, A.M., M.D.

Some of the causes from which originate the two most prominent and opposite forms of climate, insular or sea climate, and continental or land climate, have now been outlined. Purely insular climates are characterized by comparative uniformity, equability and atmospheric humidity; continental climates, on the contrary, are noted for extreme variable-ness, frequent and violent changes, and the absence of excessive atmospheric humidity. In one cloudiness, excessive precipitation, with a constantly soft, moist atmosphere, are unvarying features; in the other clear skies, moderate or even scanty precipitation and a comparatively dry atmosphere predominate. There are many subdivisions of these two basic climates, covering many and diverse modifications of these leading characteristics, so that there are almost endless varieties of climates, especially of the continental class. Maritime climates are determined and varied chiefly by two grand controlling factors,—latitude and ocean currents. The former has already been casually considered. Underlying the immediate causes of many climatic modifications is the paramount influence of the ocean currents, which, taken as a whole, constitute a grand aquatic system of circulation, interchange and equalization. These cur-

rents are the result of two principal causes, first, the variation of temperature in different portions of the water-world, second, the direct action of winds or prevailing currents in the air-world. The general result of these aqueous movements, these monster currents, is a constant transference and interchange of waters between hot and cold countries or climates. If the land-world had been distributed and arranged on strictly geometrical principles, and there were no deflecting barriers or accidental impediments to such movement, doubtless all the ocean currents would flow either north or south. But the outlines of continents and land-world masses are so irregular that all the currents are more or less split up and diverted. Nevertheless, there is a semblance of system in their occurrence and general character, most of them being practically uniform in volume and direction, the most noted exception to this rule being found in the currents prevailing in the North Indian ocean, which are wholly controlled, and for that matter, originated by the Monsoons.

The aggregate climatic effects of these various and numerous currents can hardly be estimated or realized. To illustrate: Were it not for the tempering influence of the Gulf Stream the climate of Great Britain would resemble that of Labrador, and supposing that physical change to have been possible, the political and intellectual history of the world and of civilization would have been written in different colored ink.

In America, but for the warm Japan Current, or Great Kuroshiwo, Alaska would be another Siberia, and the populous and blooming western coast of the

United States would have remained an uninviting, cold and rainless waste.

But a description of these various ocean currents, the pulsing arteries of the water-world, with their countless deviations, deflections and reversals, in detail, is not here called for, since works on physical geography and hydrography do the subject ample justice.

Among the direct effects of the various ocean currents is that of the control of the character and quantity of the rainfall of the different localities. This is accomplished through thermic changes locally induced in the atmosphere, whence arise winds or air currents, without which there would be little or no precipitation upon inland regions.

In a general way, more rain falls on the coasts than on the the interior, and more on the southern and eastern sides of continents than on the western and northern. This is a resultant of the fact that for various and now quite fully explained reasons, some of which are connected with the earth's daily and yearly motions, the principal rain-bearing winds are from the east and south. The contrast between countries and localities, even between those which are in comparatively close continuity, is marked and extreme. Thus at Bristol in the southern central part of England, the annual precipitation is but 23 inches, while at Lake Windermere, in the northerly part, it amounts to 140 inches. At Vera Cruz, Mexico, it is 183 inches, and at Fort Bliss, Texas, it is but  $9\frac{1}{2}$  inches. At Neah Bay, Wash., it is 123 inches, while at Fort Colville in the same state it is less than 10 inches. At Cordova, Spain, 112 inches is the annual average, while at Madeira it is but 28 inches. At Coimbra, Portugal, it is 118 inches, and at Lisbon about 27 inches. Most striking of all is the instance of two Venezuelan towns: Cumana, which notwithstanding its position near the coast and within the torrid rain belt, receives a mean annual rainfall of only eight inches, while Guyana, situated but a

comparatively short distance southeast of it, is subject to more than two hundred inches.

The greatest annual precipitation known occurs on the sides of the western Ghats, at an elevation of about 4000 feet, where its average is over 300 inches, and has been known to reach 400 inches. It is at this point and this particular elevation above sea-level where the super-saturated air-currents from the Indo-Persian sea impinge on the sides of the mountains and encounter the cold current which condenses them and causes this unparalleled precipitation.

As between a locality or country where the equivalent of a stratum of water twenty-five feet thick annually falls from the clouds, and one on which less than one foot is the average quantity there is necessarily a corresponding contrast in climatic conditions. The flora and fauna of these contrasting realms are radically different, since in all localities each of these kingdoms is found to comport with its immediate environment.

The influence of these contrary conditions on the physical development, mental characteristics, physiology and pathology of the human species is undoubtedly no less definite, radical and constant; but the present state of ethnological science does not enable us to trace it with as much precision and positiveness as can be done with both the vegetable and animal kingdoms. The human species is by nature practically nomadic, shifting climates and environment at will or caprice; consequently the study of the influence of environment on the race is far more complicated and difficult than in case of the animal and vegetable kingdoms which, the one from necessity and the other from instinct, are comparatively permanent or unilocal as to habitat and physical surroundings. Data for the study of the general and special effects of climate on human beings, in health and disease, are therefore difficult to obtain, fragmentary, and

inconclusive. Even those available have not as yet been analyzed with any degree of thoroughness or accuracy, scientists, for the most part, having been content with tracing their revelations and significance in relation to prehistoric types and the origin of species.

In the vegetable kingdom the olive and orange do not mingle with the northern *Acerineae*; and between hot, moisture-saturated India, with her palms, india rubber, banyan and bamboo trees, her rice, coffee, cane, pepper, and sandalwood, the indigo, betel-nut, sacred peepul, jute, opium and a thousand other equally distinguished varieties, and the frozen and forbidding aridness of Lapland or Siberia, with their one or two species of evergreens as the sole representatives of the vegetable kingdom, the contrast is fairly antipodal.

The lion, elephant, whale, walrus and reindeer each has its natural and proper habitat, and only by accident or some rare freak of nature are they occasionally met with outside of it.

The different races of the human species mingle and intermingle, to some extent, from clime to clime, but the physical, intellectual and moral effects of climate may be traced with more or less positiveness. For example, the Aryans, who sprang from that zone in which both the animal and vegetable kingdoms attain their greatest luxuriance and highest stage of physical perfection, have been carvers of history since the remotest ages of which we have any authentic record. They have been both dominant and indomitable as exponents of material and intellectual progress. They have originated systems of language, philosophy, metaphysics and religion. They include the Brahmin mystics, who claim to trace their history and origin back through millions of years. They have developed occultism into a weird semi-science, which enlightened Europe and America are now beginning to seriously investigate. Their magicians, without ostentation or the aid of

mechanical tricks or optical illusions, perform physical and psychological wonders beside which the miracles of our Bible sink into insignificance.

On the other hand, the Lapps are physically, mentally and morally effeminate and inferior. They have no literature, and need none, since their highest wants are supplied and their ambitions met by the aboriginal occupations of fishing, trapping furs, and herding the reindeer in his native haunts. They barter away their daughters each for so many reindeers, and are content with a fetich-like worship of a cheap deity, whom they name *Radien Athsie*. These extremes are the results of climate. The camel of the torrid desert and polar bear of the regions of perpetual ice are not more unlike.

At the same time, wide as is the contrast cited, it is not in moist and warm India that the human animal reaches its highest type. It is the other extreme. The heat is too constant and too excessive. The excess of moisture and warmth tends to physiological relaxation. There is a lack of tone, and while there may be ample intensity it is more spasmodic or transient. It does not persist. There is too great uniformity, not enough tonic and inspiring variety.

It is, however, in the Indian Peninsular that the vegetable kingdom reaches its highest stage and runs riot. It is here that the giant palms put forth leaves sixteen feet in circumference. It is here that the vegetable saps are concentrated into gums, spices and aromatic essences not found elsewhere. It is here that flowers reach a size and perfection seen nowhere else, the mammoth *Rafflesia* presenting a corolla three feet in diameter! And it is in this genial atmosphere that all the pungent and stimulating spices grow, as if the flaccid fibres of the inhabitants needed the spur and piquancy of all these prods to nerve tone and muscular irritability. Even in the lower animal forms this prodigality is markedly manifest. The hippopotami, rhinoceros, ourang-outang

and the anthropoid ape are found only in this climate. But when it comes to man, the acme of evolution, it is only his barbaric tendencies that here find freest scope. Gray matter and moral attributes do better in a modified and more tonic environment.

Helix, California.

### *LACTOPHENIN IN PAINS AND INFLAMMATORY DISORDERS.*

By SAMUEL WOLFE, A.M., M.D.

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In a short trial I have found this substance, which has the technical name lacticparaphenetidin, quite efficacious in mitigating the pain in neuralgia, and in reducing the fever and favorably modifying the other symptoms in inflammatory chest diseases.

I shall content myself with reporting two fairly illustrative cases.

On Saturday of the cold week ending with December 14th, I was called at 7 A.M. to see a man of 53, who had spent the evening at his Grand Army Post. Besides exposure to cold, he had also indulged rather freely in refreshments. When I called he had been frequently vomiting two or three hours, and suffered great pain in the subscapular region extending forward to the infra-mamillary region on the right side. Even a shallow breath hurt him severely, and friction sounds were present over the affected area. I gave him at once a 4 gr. lactophenin tablet, and wrote for

R Hydrarg. chlor. mit. .... gr. j,  
Sodii bicarb. .... gr. xx,  
M. et in chart. no. x div.  
Sig., one powder every hour.

I saw him again 4 hours later. The lactophenin tablet had relieved him some, before he got the first dose of calomel and soda. The vomiting had not recurred. The pains were still very decided on breathing. He was now ordered a tablet every two hours, alternating with a powder every

two hours. Next morning he was quite comfortable, except some pain on a deep inspiration. There was some bloody sputa. He was given quinia sulph. gr. ij, every two hours, and recovered rapidly.

An old lady (75) had remittent fever in October. She continued much debilitated and throughout the febrile period and subsequently had frequent not very severe attacks of tri-geminal neuralgia. She was continued on quinine, arsenic, strychnine, and iron in tonic doses.

On Dec. 11, she was seized with a severe attack, which affected the upper lip and cheek of the left side. Her daughter applied mustard, and burnt her rather severely. The slightest touch of the finger excited severe thrilling pain. I ordered a 4 gr. Lactophenin tablet every two hours; and quinia sulph. gr. ij, and liq. potass. ars. gtt. v, which she had taken for some time before, were continued. Next morning, I found the neuralgia completely under control, and only a slight tenderness of the part remaining.

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### *POST-PARTUM HEMORRHAGE.*

By P. GUNTERMANN, M.D., Louisville, Ky.

One of the greatest calamities that the medical practitioner is called upon to witness, is unquestionably post partum hemorrhage.

Hemorrhage after delivery is either primary or secondary. It is called primary when it occurs within the first twenty-four hours after the birth of the child. Generally it comes on directly or within six hours after delivery.

The secondary form has a much wider range. It may set in anywhere from one day to many weeks after the puerperal period has passed.

The primary hemorrhage comes on suddenly and often terminates as suddenly in death.

\* Reported to the Louisville Clinical Society, and contributed exclusively to the *AMERICAN THERAPIST*.

The symptoms are pronounced in relation to the loss of blood. We have pallor, fainting and vertigo, dimness of vision, gasping and dyspnea, a frequent, weak and thready pulse, often imperceptible, followed by syncope and speedy dissolution.

With these symptoms before us, we may or may not be aware of an unusual flow of blood. If we do not perceive the flow we know that it is retained within the cavity of the uterus, a condition designated as "concealed hemorrhage" and, perhaps, more fatal than external because so easily overlooked.

The causes are many and varied. First, constitutional; second, local. (a) Impoverished blood. (b) Mechanical obstructions. (c) Disturbances of circulation.

They are: Functional inactivity— inertia—after long and protracted labor; organic lesions; nervous and constitutional disturbances; obstructions of various kinds by which normal closure of the uterine sinuses is impeded or prevented. Anemia, spanemia, leucocythemia, etc., etc., are inimical to formation of thrombus. Too speedy or too long delivery of the placenta, tumors of the uterus, notably fibroids and polypi; retention of part of the secundines, etc., inflammatory or diseased conditions of the womb; the various inflammatory troubles found in the pelvic cavity with displacements, etc.; even distension of the bladder and rectum; all these separately or conjointly, may cause flooding. It is claimed that the administration of chloroform favors post partum hemorrhage. This tallies with my own experience. Certainly, the flow is more abundant and profuse after chloroform anesthesia than without it. The hemorrhagic diathesis may be a very important factor. Women thus afflicted are in imminent danger and are very likely to have severe if not fatal floodings. The diagnosis is easy and the symptoms, as before enumerated, allow of no mistake.

The treatment has been well studied but unfortunately fails in an alarmingly large

number of cases. The hemorrhage comes with a gush and empties the stream of life in an incredibly short time. No time can be lost, action must be quick and determined. First we must satisfy ourselves that the blood comes from the uterus and not from any incidental laceration, and this point established, we must be working.

See that the uterine cavity is empty, remove, if required, the retained placenta or any part of it with clots that may have formed. Use pressure and massage. Put the child to the breast, to incite after-pains. Opium will allay too great agitation. The introduction of the hand into the cavity will provoke uterine contraction. Fill the uterine cavity with ice, or inject hot water—about 120° F.—, or use both alternately. The alternating use of ice and hot water has accomplished what either could not do singly. Inject vinegar—always at hand—and give it by the mouth. Styptics, as tincture of iodine and the several styptic preparations of iron, are of undeniable service, yet they are filthy, perhaps not permanent and often dangerous. Tincture of iodine ought to be first choice.—However, anything at hand and of possible usefulness ought to be employed. Compression of the abdominal aorta has been practiced with, it is claimed, good results. It is done by pressing the aorta firmly against the lumbar vertebræ, or as has been suggested, by introducing the hand into the uterus and from there compressing the great artery. This procedure, to my mind, is of doubtful efficacy and of only temporary benefit.

Electricity has its advocates and is confessedly of great value—as a hemostatic and uterine stimulant, but it is seldom at hand. The patient ought to be put on an inclined plane head downward, and the limbs may be bandaged with some profit. While applying this mechanical means, we give ergot—preferably hypodermatically—in large and repeated doses; we give stimulants, wine, whiskey, ether and strychnine, the last three most effectively with the hypodermic syringe.

As a last but not least means of preserving life we resort to transfusion. Since direct transfusion from arm to arm is not often practicable, and defibrinated blood cannot be procured at the instant, a normal solution of chloride of sodium with the addition of a little soda bicarbonate at blood heat has been successfully used.

The treatment of secondary post partum hemorrhage belongs rather to the domain of the gynecologist and need not here be considered.

A few remarks as to prophylactic treatment might not be amiss. Most cases of post partum hemorrhage occur in the practice of midwives, and, I dare say, comparatively few in that of the accoucheur, at any rate, if he has been engaged in time, and if he saw his duty and had the discrimination to thoroughly inquire into the habits and health of his future patients.

The practitioner knows that all kidney diseases and heart troubles, anemia, etc., the purpuric diathesis, as well as a host of inflammatory and mechanical lesions of the abdominal and pelvic cavities are great factors for inciting hemorrhage after child-birth. He is aware that a woman who survived one hemorrhage is prone to have another after the pending labor. He is therefore on the alert and prepared. The pathological conditions of his patient are treated in a rational manner. Oxytoxics, quinine, ergot, strychnine, stimulants, wine, whiskey, etc., are administered in due time to anticipate and avert the so justly dreaded and fatal hemorrhage.

#### DISCUSSION.

Dr. J. M. Mathews:—A little over a year ago I attended the meeting of a Medical Society in one of the best towns of Indiana, and on the programme was a paper dealing with post partum hemorrhage. In the audience were such distinguished gynecologists and obstetricians as Ramey and Reed, of Cincinnati, Eastman and Dunning, of Indianapolis, and others. The paper was so remarkable and took

such exceptional grounds that its discussion occupied nearly the whole of the afternoon. The gentleman who read it, is a man of rare knowledge, good education and vast experience. He read one of the most interesting papers that I ever listened to, and in this paper he took exception to the treatment that has come down to us from time immemorial and as advocated by Dr. Guntermann in his able paper to-night; he went on to say, that in his long experience dealing with women in child-birth, post partum hemorrhage, etc., he had witnessed so many deaths from post partum hemorrhage, in following out, as he claimed, the details of the older authorities and accepting teaching of the day, which was to "turn out the clot." He said after witnessing a number of deaths, which were graphically described, he concluded not to follow the advice laid down by the authorities; that the next case he had we would not "turn out the clot." Then, in his graphic way, he described his next case, stating that he was called to attend a bleeding woman, etc.; the clot was allowed to remain and the woman's life was saved. His argument, which was presented in a rather interesting way, was that hemorrhage was arrested by pressure of the blood clot; that by turning out the blood clot you started the bleeding afresh, and it could only be stopped by the formation of another clot, and so on. He said that the blood clot forming as it did within the uterus was aseptic and could do no harm. His paper created a lengthy discussion, and it goes without saying, that there were not many who sustained him in his position; but it was a remarkable paper, so much so that the whole society congratulated him when it was finished.

I only mention this to show that I heard such a discussion only a year ago.

Dr. J. M. Krim:—I have recently had some experience in the treatment of post partum hemorrhage, and wish to corroborate nearly everything Dr. Guntermann has said in his paper. About allowing

the clot to remain—this would certainly facilitate the tamponing method; the clot would act as a natural tampon. In his paper the doctor said nothing concerning the use of the tampon in these cases. I believe in very severe hemorrhages, rather than resort to hot and cold applications, that the tamponing system is best; the tampon may be easily applied and controls the hemorrhage more quickly than anything I have tried. I have employed external pressure, etc., with limited success. As to hemostatic agents, I have gotten the best results from hydrastinin and ergotin, using a combination tablet every fifteen minutes, if necessary, in connection with a tampon of either iodoform or plain gauze.

Dr. T. P. Satterwhite:—The subject under discussion is an extremely practical one, and a question that is not often discussed before our society meetings. Dr. Guntermann's paper is very complete, and I am astonished that those of us who practice more or less midwifery do not go better prepared for these emergencies. I have encountered a few cases of post partum hemorrhage, but only one that I can now recall that was alarming. They were controlled by the hand, which caused prompt contraction and arrest of the hemorrhage.

We are all familiar with the various measures suggested to be placed in the cavity of the uterus to stimulate it to contraction, but I do not know of anything better than to remove the clot and stimulate the cavity. We should have an abundance of antiseptic gauze, to stuff the cavity full if the internal stimulation should fail. By these means the hemorrhage can be controlled. Electricity is a potent means of causing contraction. I have found that quinine acts much more favorably in these cases than ergot. I think the person who practices much midwifery should go prepared always with a solution of quinine, giving it hypodermatically with strychnine. Anything that will arouse the nervous system and cause con-

traction of the muscular fibres of the uterus will arrest hemorrhage.

Referring especially to Dr. Mathews' remarks about allowing the clot to remain: Of course it does not take long for the clot to decompose, and it seems to me allowing it to remain would be inviting sepsis. Relief depends upon contraction of the muscular fibres of the uterus, and we must use remedies that will cause its firm contraction; I do not know of anything better than to stimulate the interior of the uterus, and give hypodermatic injections of strychnine and quinine.

Dr. J. M. Krim:—Another word or two about leaving the clot: Two months ago I saw a case of post partum hemorrhage in consultation with Dr. Veach. Hemorrhage had practically ceased when I arrived, but there was a very large uterus and evidently a large clot; the woman was doing fairly well; after-pains were weak; the patient was also very weak from loss of blood. We determined to let the clot alone; it remained for thirty-six hours, when pains became severe and the whole clot was forced out, and no more hemorrhage occurred afterwards. I believe if the clot had been taken away at first, no more hemorrhage would have ensued.

Dr. Carl Weidner:—As to management of post partum hemorrhage of the first variety, primary hemorrhage, that occurring soon after the birth of the child, not dependent upon retained membranes, etc.: My experience leads me to agree almost perfectly with what Dr. Satterwhite has said. I have never seen an alarming hemorrhage that had continued for any great length of time, and have always been able to arrest bleeding at the start by a thorough kneading of the uterus; this being done by bimanual manipulation, one hand in the vagina with two fingers around the neck of the uterus making compression and exciting contraction by the kneading process. A thorough kneading without fear of hurting the woman has been usually sufficient to



stimulate and cause contraction of the weak muscles so that the blood clot contained therein would be expelled without direct removal. I think this is most desirable. There is always some blood within the uterus after delivery, but the more complete the emptying the more sure the uterus will be to keep up a continual contraction. It is rational to give strychnine for its tonic effect upon the nervous system and upon the muscular fibres.

Dr. Louis Frank:—Dr. Guntermann has certainly gone over the ground very thoroughly in his paper; but I believe the opinion now among obstetricians is, that it is not so much loss of contraction of the uterus as loss of retractile power of the muscle itself which is the cause of post partum hemorrhage. After labor we find the uterus constantly undergoing rythmical contractions. The uterus does not remain in a state of tonic contraction, but it is the retractile power which the muscular fibres possess that causes complete closure of the uterine sinuses and prevents further hemorrhage. Be this as it may, in the treatment of post partum hemorrhage I have yet to find a case in which kneading of the uterus alone was not sufficient to cause cessation of the hemorrhage. When it does not succeed, I believe hot water or bimanual compression of the uterus itself is probably the next best method. The introduction of ice, I do not believe is advisable, for the reason that we always have with excessive hemorrhage more or less shock and depression which is increased by the application of cold or ice. This is especially true if ice is placed on the abdomen, as I have known to be the case. It is my rule to always go prepared with a syringe and with a jar full of plain aseptic gauze; I do not use iodoform gauze for this purpose. My syringe and plain gauze are always ready, and if hemorrhage becomes alarming and cannot be promptly controlled by kneading or by pressure, I immediately resort to hot water injection into the uterus itself. If this does not promptly control

the hemorrhage, I tampon the uterus. The tampon being a foreign body and also compressing the sinuses will always effectually control the bleeding.

As to the use of iodoform gauze: I do not believe this is good practice, as there is danger of iodoform poisoning. I have never seen this result in a case of post partum hemorrhage, but we have here a surface which absorbs very rapidly, and there is danger in the iodoform gauze which we must not overlook.

As to the administration of tonics: The best of all is strychnine. In case much blood has been lost at the same time we may resort to transfusion, not as a curative agent, as this does not control the hemorrhage, but merely to replace the blood which has already been lost. Elevation of the foot of the bed and bandaging I do not think have any controlling effect upon the hemorrhage, merely enabling the patient to retain consciousness until such time as it can be controlled. Some advise the hypodermatic use of ether, and some authorities also urge the use of diffusible stimulants, such as aromatic spirits of ammonia. One case in which I used both these drugs in hemorrhage following an abortion, immense sloughs occurred as a result. I am sure the sloughs were not due to any septic condition of the needle itself.

Dr. J. W. Irwin:—The subject under discussion is especially interesting to the general practitioner. I have had some personal experience with post partum hemorrhage, extending over a period of twenty years, and have not seen a death occur in my own practice from this cause. I have not been so fortunate as the previous speakers in having time to resort to the many measures mentioned for the relief of my patients. Hemorrhage in the cases I saw was alarming, and I had to depend wholly upon mechanical means for its immediate relief. Consequently had I waited to resort to the use of strychnine, ergot, etc., my patients would have died before I would have had time to ad-

minister such remedies. In the few cases which I have seen, probably not over four or five in my own practice, hemorrhage came on within twenty minutes after delivery; it was very profuse; it came on with a gush, the patient showing its effect immediately: pallor, profuse perspiration, etc. The hemorrhage flowed in a large stream. I found it was necessary to resort to what may be called the old method,—immediately emptying the uterus of its clots and membranes, with one hand making such pressure as I could on the abdomen so as to cause contraction of the uterus, and as soon as a syringe could be gotten ready, I had a stream of hot water applied to the interior of the womb. Following the advice of Penrose, who was Professor of Obstetrics in the University of Pennsylvania when I was a student, I used one part of cider-vinegar in sixteen parts of warm water and kept a constant stream flowing into the vagina and interior of the uterus until contraction took place, still keeping my hand within the womb allowing it to contract upon it, and making continual pressure with the other hand from without. In that way, I succeeded in saving all my patients' lives. In some of the cases, I have given strychnine in large doses,  $\frac{1}{4}$  grain hypodermatically, and the fluid extract of ergot in a tablespoonful dose. This was before the normal liquid ergot came into use. I have found that large doses of strychnine prevented a recurrence of the hemorrhage.

Touching the question Dr. Mathews has raised:—I will speak from two points of view—that the surgeon would consider such a matter at all in the first place, and secondly the few cases of death which I have known to occur from post partum hemorrhage have been in the hands of midwives, and the patients were dead before I saw them. The clots not removed were in these cases, neither were the membranes. I distinctly remember three cases where the patients were dead before I reached their houses, after having been delivered of children by midwives.

These cases would go to show that the clot did not act as a tampon, nor as a hemostatic. The surgeon who would trust to a clot to stop secondary hemorrhage after an abdominal operation would be very derelict in his duty, and I think an obstetrician who would adhere to the advice suggested by Dr. Mathews' friend would be equally derelict. We must remember, that blood will flow from the open mouth of the uterus even if there is some clot; that the blood will not coagulate readily in the uterus, and a clot to arrest hemorrhage would have to be very large. Under these circumstances, it seems to me, it would be very unwise in practice to depend upon a clot to stanch hemorrhage after labor.

For these reasons, I would be inclined to resort to the old methods, cleaning out all clots, membranes and all foreign substances; irrigating the interior of the uterus, using one hand to make pressure upon the abdomen, in this way establishing firm contraction of the uterus, and keeping it up by the use of strychnine and ergot, as I have mentioned.

Dr. P. Guntermann:—As to the case spoken of by Dr. Mathews, where the clot was allowed to remain in the uterus: I have always thought that an empty uterus was the safest. In all cases I make it a point to ascertain whether there is anything to be removed, and if so I immediately proceed to remove it, and have generally found that contraction takes place afterwards very promptly. I have seen one case, in the practice of a brother practitioner, where an immense clot had formed, and still the bleeding continued and the woman was slowly dying. After removing the clot, which was as large as a child's head, contraction was prompt, and the woman made an excellent recovery. I do not believe it is safe to leave the clot in the uterus as oozing may continue in spite of its presence; besides, the uterus cannot contract, or retract, as Dr. Frank has said, until the clot has been removed. Both of these actions are

stopped entirely, and it seems to me the result must be fatal if the clot is allowed to remain.

As to tamponing: I think this is about as bad as to leave the clot. It may bring about a contraction, but if you insert a tampon large enough to fill the whole uterine cavity you stop uterine action just as much as a clot would. The tampon may be well enough in cases of ordinary bleeding—or “flooding,” as it is called by the laity and sometimes by the profession—but if the case is really one of post partum hemorrhage, where there is excessive waste, by using the method of Crede, massage, pressure of the uterus firmly with both hands, contraction will usually occur promptly.

### PHYSIOLOGY IN MODERN MEDICINE.

By MARK W. PEYSER, M.D.

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#### IMMUNITY TO SYPHILIS.

Dr. Edward Cotterell, in a paper on the Treatment of Syphilis by Injections of Syphilitic Antitoxin (*British Journal of Dermatology*, November, 1895), states that he used, for various reasons, serum from persons who had gone through an attack of syphilis, and so had been rendered safe from subsequent attacks.

His arguments are, 1. One attack of syphilis confers immunity from subsequent infection upon the individual affected, exceptions being so rare, they may be disregarded. Therefore, an individual who has, or who has had, syphilis, possesses some property within himself which renders him immune from any fresh infection from this disease.

2. Although, at the present time, it has not been definitely proved, still it is highly probable, that syphilis is due to some specific micro-organism, and that the symptoms of so-called secondary syphilis

are due to the production of a toxin by this specific bacillus. So, again, it is probable that the immunity observed from second attacks of syphilis is due to the presence of some material in the blood which, for want of a better name, we may term “syphilitic antitoxin.”

3. It is a matter of common observation that a child, the subject of hereditary syphilis, may be borne of a woman who has never exhibited—as far as can be made out—a single sign or symptom either of the primary or of the secondary manifestations of syphilis, and in addition, she shows herself immune to the poison of that disease, for she cannot be inoculated with it, either by her own syphilitic offspring or by the poison from any other source.

Without going too deeply into the nature of this strange immunity, said Dr. Cotterell, it might perhaps be explained by presuming that by some means, possibly due to some peculiar property of the placenta and its circulation, only the syphilitic antitoxins from the foetus reached the tissues of the mother, and in this way she was rendered immune to the disease which the father has transmitted to his offspring. (*N. Y. Medical Journal*, Nov. 30, 1895.)

Immunity may be natural, or it may be acquired. Natural immunity rests upon inherited insusceptibility of the tissues and cells of the body against bactericidal poisons. Nothing is more common than to see in a number of persons exposed to infection, some contract it, while others are not at all affected. This in itself is a sufficient answer to the third argument advanced by Cotterell, without bringing in any supposed “peculiar property” of the placenta and its circulation. In the fight between the syphilitic, or any other infectious virus and the body cells, some of the latter perish, the stronger survive and carry on the battle. If a predisposition exist, or if the former mode of life have weakened the cells, the toxin is triumphant and disease is manifested. If,

on the other hand, the body cells, especially the leucocytes, remain through temperance, etc., in full possession of their strength, the result is the opposite. In persons exposed to disease, this process may be going on at all times. Persons surviving an attack of an infectious disease, are rendered immune against a second, because of the survival of the stronger cells, which have, so to speak, become educated. The author entirely overlooks this natural protection. He says immunity from a second attack of syphilis is due to the presence of some material in the blood, but its source is not the micro-organisms, as he and others would have us believe. This material is a defensive agent produced by metabolism of the leucocytes and other cells. The "antidote theory" supposes that the substances which confer immunity, directly or indirectly, are contained either in the bacteria or in their secretion products. Koch's tuberculin was based upon his theory, and it has met its fate. Aronson says, antitoxin acts by stimulating the body cells. Other workers claim that its action is a chemical one. There is no doubt that Aronson's explanation is the correct one. Diphtheritic, tetanus, syphilitic, pneumonia, typhoid, etc., antitoxins all depend on the presence of a certain substance. They are taken from animals rendered immune to the respective disease. This immunity is due to the presence of a material, formed by the surviving cells, dissolved in the serum (for serum itself contains no immunizing agent), and the material formed from stimulation of the cells by alternated cultures, is nuclein. This substance, as Dr. Aulde says, does not act to supply a substance that is wanting, as antitoxin is said to do, but as a ferment which promotes cellular activity.

#### SOME SUGGESTIONS AS TO THE ETIOLOGY AND TREATMENT OF TUBERCULOSIS.

An article by Pinkston, of Kentucky, bearing this title, appears in the *Virginia Medical Monthly*, December, 1895. "Tu-

berculosis . . . . . differs from any other contagious or infectious disease. It is the only one that is supposed to want an antagonizing vital principle in the blood, or in the tissues and secretions." "This defect (defective nervous system), either inherited or acquired, furnishes a soil deficient in the antagonizing principle, so that the bacilli live and thrive in it without antagonism. Until the antagonizing inherent principle, that exists in most people, and that furnishes an immunity to the disease, under ordinary circumstances, shall have been determined by microscopical investigation, our treatment will necessarily be symptomatic, and based on clinical observation." "When the individual has once experienced an attack of small-pox, measles, scarlet fever, etc., there is a great reluctance on the part of the system to again supply the principle which once constituted a predisposition to the disease. In these diseases it is assumed that the predisposition consists in the presence of an agent for which the bacilli or micrococci have an affinity; and in tuberculosis, there is an antagonizing agent which, when deficient in quantity or absent, forms a predisposition, or, more correctly, a want of immunity to the disease. Therefore, to effect a cure of the disease, or continued immunity, will require an increased supply or greater vitality of an unknown principle. Metschnikoff's phagocytic theory is perhaps correct, and unless disproved, will no doubt furnish a basis for future investigation." "The leucocytes are probably the antagonizing agents of most all diseases, and possibly not more so in tuberculosis than in other affections. This want of vital resistance on the part of the leucocytes, and probably other secretions, in consequence, perhaps, of a peculiar nervous organism that presides over digestion, assimilation and tissue construction, may be transmitted from one generation to another, as we frequently see exemplified in some families, to convulsive and other nervous diseases. The evidence, so far as we

know, is not in favor of a specified element or substance in the system which may be exhausted and render the system immune to tuberculosis. If such were the case, it ought to be a self-limited disease. If the conclusions are correct, all scientific efforts to render the system immune to tuberculosis, or produce a permanent cure, will prove futile. Antiseptic precautions, the observance of sanitary rules for prevention, and hygienic and reconstructive measures for treatment, will probably be the result of all investigations."

In the section on immunity appearing in this paper, it was not considered necessary to notice the exhaustive theory, as it was thought it had long ago been disposed of. The theory supposes that the invading microbe takes from the human economy the elements necessary for its existence. These elements are never replaced, and hence, when absorbed, the system is rendered refractory to the life and growth of similar microbes when presenting themselves to produce disease. Concerning the theory, Roosevelt (*N. Y. Med. Journ.*, March 18, 1893), says: "It would be hard to believe that this could be the case if provision were only made for the growth and nutrition of some *one species of germ*; but when we are called upon to believe that the majority of mankind come into the world with a separate and distinct substance suited to the needs of the micro-organisms of small-pox, measles, yellow fever, etc., the imagination is staggered and the reason revolts against such a preposterous idea." It it were true that all infections were provided with such entertainment, there is surely no reason why tuberculosis should not be similarly treated.

Cure of tuberculosis, as of other zymotic diseases, can be ascribed to "survival of the fittest" cells, and this theory has no exception in any of the infections. The author is incorrect in his premises, although very near solving the method of cure. The leucocytes play a most important part in the production of immunity

and cure, by phagocytosis and by furnishing a nutritious and stimulating substance. A weakened state of the tissues combined with non-resisting leucocytes, furnishes all the substance necessary to enable microbes to poison the system; and there is no need to suppose that each particular kind of germ needs a particular substance to further its propagation. "To effect a cure of the disease, or continued immunity," says Dr. Pinkston, "will require an increased supply, or greater vitality of an unknown principle." Hughes, of Philadelphia, says, "It must be borne in mind that the production of a cure is not necessarily the production of immunity; cure and immunity may not be strictly synonymous. It is true, that after the cure immunity follows, but may not the production of cure be merely a step in the production of immunity?"

The "unknown principle" is not at all unknown. Undoubtedly, it is nuclein, which is produced by the leucocytes which, the author says, play an important part in antagonizing all diseases. This claim is not an unfounded one, as witness the cures brought about by the use of nuclein in cases of initial tuberculosis (reported by Vaughan, and also *AMERICAN THERAPIST*, November, 1895).

A contribution to the study of the defensive proteids was made by Dr. R. H. Hays, of Alabama, in a paper on "The Nucleins and Their Relative Position in Therapeutics," read before the Tri-State Medical Society (*Texas Medical Journal*, December, 1895). The nucleins, he says, are protoplasmic or bioplasmic cell substance, the bioplasmic, primal unit of the organism, the cell life, vital and resistant force, a proteid, granular cell-life substance in which all vital energy and cell-life resistant force exist, and through which all animal nutrition takes place. They reside in the tissue cells and the yeast of certain plants (animal and yeast nucleins). The former are taken from the blood and lymphoid glands of the body, residing principally in the polynuclear blood-cor-

puscles, or leucocytes, the proliferation of which they have the power of increasing. They are the natural defenders, arresting and overwhelming all alien or disease germs as they enter the blood stream. The difference between the antitoxins and nucleins is, the former antidote or antagonize a ptomaine formed by the presence of alien or disease germs, and they belong to the class of serum-albumens attacking the germs when they reach the blood stream. The nucleins are more direct, having the advantage of attacking, through the leucocytes, any or all germs or poisons entering the system. The author reported the cure, in four months, of an ulcer of sixteen years duration. Another case of ulcer of the ankle (both non-tubercular) was very greatly relieved in the same time. He favors, from limited experience, more general application of the nucleins.

ABSORPTIVE POWER OF THE URINARY BLADDER.  
—NECESSITY OF CONSIDERING REMOTE LOCAL  
ACTION OF DRUGS, BEARING UPON INDICATIONS  
IN CHRONIC CYSTITIS.

"An Essay on Cystitis," by James J. Walsh, of Philadelphia (*University Medical Magazine*, November, 1895), is an article replete with interesting cases, and of most painstaking research. Writing of the attempt to induce cystitis by the introduction into the bladder of pathogenic germs, he says, the resistance of the healthy vesical mucous membrane to the invasion of bacteria, is thus seen to be marked. The squamous, transitional epithelium that lines it, seems to be nature's favorite means for protecting herself where mucous surfaces are more or less liable to exposure from infection. In the mouth it forms an excellent safeguard, for, though the upper digestive and respiratory passages are nearly always the habitat of many and varied forms of pathogenic bacteria, only comparatively rarely, however, are nature's barriers passed and disease set up. This takes place only when abrasions or local inflammatory processes or serious constitutional weakness have low-

ered the resistive vitality of the buccal epithelial cells. The same conditions hold for the bladder, only that the vesical mucous membrane seems still more resistant, and the absence of the rich plexus of lymphatics that exists in the mouth and nose makes it even less liable to allow constitutional contamination.

The action of the cells is here plainly set forth, indicating the line of treatment in affections ensuing from their absence or from injury to them. It is another proof of the correctness of the fundamentals upon which cellular therapy is based. As we go on with the paper, we find the rationale of this method is further verified by the experiments undertaken.

As the question of absorption of effete materials from the bladder during long continued retention was an interesting one, absorption through the vesical mucous membrane being still disputed in physiology, some experiments on the subject were performed. They were done on dogs and rabbits. It was found, though most of the physiologists teach "the absolute impermeability of the vesical mucous membrane," that strychnine, atropine and apomorphine were readily absorbed when injected into the bladder, though the absorption was slow, and comparatively large doses of the drugs were required to produce their physiological effect. It was found that ether and chloroform in the state of vapor, were absorbed and eliminated by the breath, complete anesthesia occurring in rabbits but not in dogs.

Further, a series of thirty observations by two experimenters on the amount of urine passed in twenty-four hours, and of the solids it contained, seemed to show that there was a slight but constant decrease of the watery elements and the solids in the urine when it was passed four times a day, as compared with when it was passed twelve to fifteen times a day. That is to say, there was resorption of fluids and solids when the urine was retained for some time in the bladder.

Experiments made on dogs, after ligation of the penis, for ten hours, showed that the state of irritation set up by this forced retention caused still further and more rapid absorption of drugs than before. The experiments were suggestive rather than conclusive, but they emphasize the clinical teaching that urine must not be allowed to accumulate in the bladder and be retained for long intervals; that care must be exercised in the injection of medicaments into the bladder, as their absorption may give constitutional symptoms; that such poisons as belladonna, or any other that is eliminated by the kidneys unchanged, require the emptying of the bladder by artificial means, or, frequently, in a natural way, as an essential part of the treatment.

They indicate, too, another reason for the general symptoms of malaise that often accompany cystitis, and show that the condition of blood known as ammonemia, and supposed to come from the resorption of the products of ammoniacal fermentation of the urine, is not only possible but probable. They emphasize, also, the indications for chronic cystitis, *vis.*, the employment of such means as will neutralize the urine, and make it unirritating and prevent fermentative processes, and would seem to call for local measures in the treatment of the affection, *i. e.*, by washing out the bladder much sooner than is at present counselled, this being especially advisable in poisoning cases.

Some experiments on the absorptive power of the anterior and posterior urethra help, perhaps, to give a physiological reason beyond the mere fact of greater exposure, on account of situation, for the greater frequency of inflammatory processes in the anterior urethra. The anterior urethra absorbs drugs that are injected into it very rapidly, the physiological effects following almost as quickly as when the drugs are ingested into the stomach. The posterior has much less absorptive power than the anterior urethra, comparing in this respect more with the bladder.

The subject is an intensely practical one, drawing attention to points that arise in the physician's every day work. It is a truth that in the endeavor to relieve we are too prone to concentrate our efforts upon the organ suffering, never, or seldom, taking into account the remote local action the drug given may have. Thus, at any time we may be confronted with a complication not "dreamed of in our philosophy," and active measures must be instituted for its relief, much to the detriment of the original treatment. Again, local measures, immediate local, are sometimes undertaken, when drugs may perform the same office, by their remote local actions proving more agreeable thus, to both patient and practitioner.

We must, therefore, take more heed of eliminative pharmaco-dynamics; must, in other words, reduce practice as far as possible to an exact science. The day of "shot gun prescriptions" is rapidly passing, and it is a blessing that it is so, for this haphazard method has cost countless individuals their healths or lives. We are in the era of simple prescriptions, of single agents given for a specific purpose, showing the trend to be towards rationalism.

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### THE PHYSIOLOGICAL ASPECT OF STRYCHNINE ARSENIATE.\*

By JOHN AULDE, M.D.

Frequent mention of the remedy in recent numbers of the Clinic prompts me to make a brief comment upon the physiological aspect of strychnine arseniate, a remedy the usefulness of which is only beginning to be understood in this country. As is well known by those conversant with dosimetric medication, strychnine arseniate is a remedy which was popularized by Dr. Burggreave, the founder of this method, and during the past ten years has been making headway among the more advanced thinkers in clinical medicine.

\* From *Alkaloidal Clinic*, Feb. 1896.

Strychnine arseniate is a combination of strychnine, the alkaloid, and arsenic, and thus, from a physiological standpoint, it ought to possess the properties of both ingredients; but to the clinician who has familiarized himself with the various strychnine and arsenical preparations used in medicine, it must be apparent that this peculiar combination possesses properties far superior to either when employed alone, or even in the numerous forms in which the two are combined—pills, elixirs and mixtures.

The dose is comparatively small, one one-hundredth to one-thirtieth of a grain at intervals of two to four hours, and when put in the form of granules or tablets its great convenience for bedside administration will be appreciated. Should the question of palatability be taken into consideration, for it is extremely bitter, this objection may be overcome by one of the various forms of coating, pill-coating having been brought to a high state of perfection during the past few years.

Physiologically, the clinical properties of strychnine arseniate may be summed up in a few words, inasmuch as the physiological properties of the two ingredients entering into the combination are so well known. Arsenic, when given in large doses, produces fatty degeneration of the tissues and its effects ramify to every tissue and structure of the body. It has even been found in considerable quantity in the flat bones. Large doses continued for a considerable time produce fatty degeneration in the liver, kidneys and cardiac muscle, and the cerebral structures do not wholly escape its mephitic influences. Nevertheless, arsenic is used to remove the very conditions which it has been shown to produce, namely, fatty degeneration, but instead of being an illustration of the truth of the doctrine originally taught by Samuel Hahnemann, it simply and beautifully demonstrates what I have so long taught in relation to cellular therapy, which, by the way, is strictly in record with scientific investigation.

Fatty degeneration is not in itself a cause, but the effect of diminished oxidation; sub-oxidation results from diminished cellular activity and this in turn is followed by fatty degeneration. Arsenic in this class of cases promotes oxidation, that is, it increases cellular activity, and since it is so thoroughly distributed throughout the system, its effect upon tissue-change soon becomes apparent. Thus, increased oxidation and augmented cellular activity favor the more rapid elimination of waste products, so that when we are able to maintain a moderately fair condition of the digestive apparatus, persons suffering in this manner soon begin to show evident signs of improvement. This is due to the fact that the arsenical product, which is in truth a poison, is not taken into the system in sufficient amount to produce pathological effect, but simply acts as a stimulant to the over-burdened tissues. But this effect is not confined to any particular organ or structure, as will be readily understood from the foregoing remarks, increased cellular activity being the rule throughout the entire system.

For example, we all know how Nature seems to send waste products for removal where disease exists, as in the case of boils and abscesses, and the same principle holds good whether the disease be confined to the lungs, the heart, the liver, the brain or the kidneys. Arsenic is, therefore, one of our most efficient constitutional remedies, because it increases oxidation, augments cellular activity and enhances the ability of the general system to cast off waste products. It is, indeed, a remedy which most beautifully and scientifically illustrates the doctrine of cellular therapy.

A word should be added here to the effect that cellular therapy does not take into account the pathological effects of medication in lethal doses, but it has for its purpose the stimulation of cell-function by the administration of minimum doses with a view to stop short of pathological action. In other words, it aims to stimulate rather



than depress cell-life and cell-function, and thus restore instead of destroying what may be termed the vegetative functions in animal life.

When strychnine arseniate is taken into the stomach, it undoubtedly undergoes chemical change, the arsenic combining with the sodium and potassium salts in the blood while the strychnine is also distributed in the form of a salt instead of an alkaloid. The medicinal value of strychnine has long been recognized, but we must not overlook the fact that this has in large measure resulted from its well known pathological action in the animal economy. Given in lethal doses it produces tonic contractions of all the muscles, the flexors being more affected than the extensors, simply because they are more powerful than the latter. In small, medicinal doses this pathological action is not observed, hence the good results which attend the exhibition of the remedy (poison) in this particular manner. Moderately large doses continued for a sufficient length of time will almost certainly produce more or less fatty degeneration, because when the muscular structures are brought under this influence and the condition maintained, there is an interference with nutrition, the circulating fluid being unable to penetrate the solid mass of tissue. In small doses this condition does not obtain, but the increased functioning of the tissues composing the muscular structure results in a heightened vitality, and thus we see how strychnine complements the remedial value of the arsenic with which it is combined.

There is still another point to be considered in connection with the medicinal use of this remedy, and it is something which applies with equal force to the administration of alkaloids in general, and must prove of particular interest to the readers of this journal, all of whom, it is assumed, are especially interested in the subject of alkaloidal therapeutics. It has been repeatedly demonstrated that there exists in normal blood a

substance which partakes of the nature of, if it is not an actual ferment, and it is not beyond the stretch of imagination that this ferment may be modified or changed by the exhibition of alkaloids, or indeed, by the use of any product the composition of which affords certain elementary substances out of proportion to those existing in the human body. This rule, it will be seen, would apply to both strychnine and arsenic, and since the alkaloids are, for all practical purposes, ferments, their administration should rest upon some physiological basis as regards their effect upon this normal ferment. The subject is one which will bear careful investigation on the part of the experimental physiologists, and is mentioned here for the purpose of directing attention to a physiological complexus which has hitherto been entirely overlooked in the laboratory and the clinical amphitheatre. The remarkable properties of nuclein are evidently due to its influence upon this peculiar product. Nearly all remedies, and more especially the alkaloids, are of value in proportion to their ability to produce a stimulus to the organism, including, of course, the nervous system, and their value must be determined by the clinical results, through increased cellular activity, more rapid oxidation and elimination of waste products, together with the hypothetical influence which they produce upon the normal ferment in the blood. The chemical and physiological properties of strychnine arseniate appear to comply with these demands in a measure to make the combination a desirable one, and the clinician will not be disappointed in its administration.

Philadelphia, Pa.

**ELATERIN A CERTAIN PURGATIVE.**—Elaterin as a remedy to induce free purgation, that is the pure drug, is so unreliable that it has been discarded in the last revision of the Pharmacopœia, and the active principle, elaterin, is the only official preparation of the drug. This is absolutely certain in its action, and is given in doses from one-twentieth to one-tenth of a grain.—Dr. AD. KOENIG.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - - EDITOR.

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## Editorial.

### PROTECTION OF THE STOMACH AND INTESTINES FROM PATHOGENIC GERMS.

Reed, of Atlantic City, N. J., in a paper on this (*Annals of Hygiene*, August, 1895), gives three means by which we can prevent the infection of the stomach and intestines by pathogenic germs with the resulting fermentation and putrefaction of food and the development of inflammatory processes, which, when allowed to go unchecked, end by disastrously undermining the general health.

1. By keeping the mouth and neighboring cavities clean.

2. By seeing that the food and drink are as free from bacteria as possible.

These we can dismiss with the mere mention. However, by so doing, it is not intended to deprecate their importance. The third method is one that particularly claims our attention:—the maintenance of a healthy condition of the defences by which nature always attempts to protect the vital organs from the invasion of hostile germs.

A full consideration of this requirement would carry us through the entire domain of personal and public hygiene; but only a hasty glimpse can be given here, at a

few of the more salient points. To begin with, we should avoid undigestible articles of food as well as an excess of stimulants or condiments (many hygienists would say, avoid all stimulants and condiments) which irritate and wear out prematurely the secreting glands. It is scarcely less important to avoid eating at irregular times, and amounts of even wholesome food which are far beyond the needs of the body, or beyond the power of the appropriate organs to digest and assimilate.

The abuse of powerful medicines, especially the quack nostrums of the day, so freely prescribed for themselves and friends by many thoughtless persons—as well as other forms of drug tipping—are among the most common methods by which the vitality of the stomach is so crippled and impaired that disease-germs readily get the upper hand in the battle ever being waged by them with the defensive cells and antiseptic fluids of the body.

Turck, in some recent experiments, endeavored to infect the stomachs of dogs with certain bacteria, but failed. Then instruments were introduced into the stomach, and purposely so manipulated as to produce abrasions upon the mucous membrane. Still, the enemy was not suffered to obtain a foothold. The abrasions rapidly healed, and the leucocytes, or out-wandering cells, abundantly supplied by a healthful circulation of nominally rich blood, promptly put to route the invaders. Not until after he had poisoned the gastric mucous membrane by administering frequent large doses of active drugs, such as tannic acid, was he able to accomplish his object and infect the stomachs of the dogs. These experiments of the brilliant investigator teach an object lesson to hygienists, and one which should not be lost by the therapeutists.

One of the advantages, and a most decided one, of cellular therapy, is the administration of drugs in small doses—doses insufficient to produce irritation, but sufficient to effect the purposes for which

they are administered. Even were the size of the dose the only advantage, yet it must perforce carry weight. For example, take digitalis. Who does not know the suffering brought on by its use, because of the production of gastric irritation? We cure an evil, but to produce another; and who would not rather bear the ills we have, than fly to others we know not of? There can be no doubt that cellular therapy is gradually taking a hold upon the profession; but it is disheartening to hear a man who has, it might be said, grown up with profession, make the statement that we make a mistake in giving the solid extracts, as they are of too small bulk, and that he prefers the old-fashioned and reliable (so he terms it) salts, senna and manna. Ephraim wedded to his idols!

It is, however, satisfactory to note, that every day brings information that physicians are falling in line in the belief of the two functions of the colorless corpuscles—the direct and indirect—leucocytosis, the reparative function, and phagocytosis, the protective function. P.

#### VERATRUM VIRIDE IN PUERPERAL ECLAMPSIA.

Davis, of Alabama, reports a case of puerperal eclampsia treated with veratrum viride (*Va. Medical Monthly*, Dec. 1895.). He first ordered ten grains of calomel to be taken at bedtime; also twenty drops of chloroform every four hours. The following day, for headache, he prescribed "ten grains of antikamnia, twenty drops of tincture of gelsemium and papine, one drachm, two doses of which—three hours apart—gave entire relief." Being sent for the next morning, at two o'clock, he found the patient having convulsions and "at once administered hypodermatically, Norwood's tincture veratrum viride, min. xxv. In a few minutes, there occurred a profuse perspiration, and the hard bounding pulse, which was considerably above 100 when I arrived, was soon soft and

under 60. Her pulse continued to fall until it was 52, and forty minutes after administering the veratrum, she was so much nauseated, that I gave  $\frac{1}{4}$  gr. morph. sulph., and  $\frac{1}{100}$  gr. atropin under the skin. This relieved the nausea and vomiting at once, and produced refreshing slumber. When she awoke, however, she was apparently alarmed and a little 'flighty.' The pulse became accelerated until it was in the neighborhood of 100, when the fifteen drops of the tincture were again injected.

"In such cases," Davis says, "we can stimulate the kidneys as much as possible, and then call upon the skin, etc., to help bear the load during this short time, while by keeping the circulation under 60 with veratrum, we control the convulsions until labor has commenced." "The veratrum will *invariably* control the convulsions." "In the case reported, I think I erred in not directing veratrum in ten-drop-doses as a prophylactic at my second visit."

Here is given another example of tampering with nature, for it is plainly shown that decided poisoning was produced by the enormous doses of the deadly veratrum exhibited. If the remedy had been administered in proper amounts, there would have, in all probability, been no necessity for morphine and atropine.

The author speaks of stimulating the skin or kidneys when he holds, by means of his *poison*, the pulse to 60. Is it physiological—in other words, is it reasonable—to expect the organs to perform their functions when the circulation is in such a weakened condition? To put it in another way, can he expect an organism to perform two related functions simultaneously, especially when the prime factor is greatly depressed? The simplest teachings of physiology, its fundamentals, should tell him of the impossibility. In cold weather the body is capable of increased micturition, but perspiration is insensible. In warm weather micturition is diminished, while sweat is copious. This

occurs in healthy organisms. What can we expect in weakened condition?

"The dose I advise," says Dr. Davis, "is from 20 to 25 drops under the skin. I do not claim that smaller doses will not relieve, but the large dose will relieve sooner, and is *absolutely safe*."

It would be interesting and instructive to know, if the doctor had ever employed the smaller dosage, and if so, with what success.

The writer has used  $\frac{1}{100}$  grain doses of aconitine in urinemetic convulsions, and has been perfectly satisfied with results obtained. He is rather afraid that in case of death, all jests aside, he would be at a loss as to which it might be ascribed—the convulsions or the veratrum.

In the clinical application of drugs, the object sought is not the largest amount that can be borne, but the smallest that will bring about the results desired.

The administration of poisons in enormous doses is a practice that should be condemned; but it is to be feared that until a death from them shall have been *recognised*, the majority of the unthinking physicians will continue to prescribe them. As has been often said before, it is not only the more powerful medicaments that should be administered thus, but the weaker ones, if they may be called thus, also. P.

### EDITORIAL NOTES.

OUR READERS are asked to bear in mind that our columns are always open for comments on any subject presented in our journal; every number contains a great variety of matter, inviting careful perusal and study, and if discussions follow, the interchange of opinions is bound to enhance the value of the publication. We invite communications, long and short; and we hope this invitation will prompt liberal and continuous responses.

THE REPORT in this issue on Post-partum Hemorrhage will repay close reading. It is an interesting suggestion, to leave the clot to perform the service of arresting the flow of blood; the clinical society which furnishes the discussion did not agree that this procedure was advisable. We will be pleased to publish the opinions and experiences of our readers if they will take up the discussion.

## Current Literature.

THERAPEUTICS OF DIABETES.—Dr. J. Blake White, of the New York City Hospital, contributes a practical exposition of causes, symptoms and treatment of diabetes in a recent issue of the *Amer. Medico-Surgical Bulletin*. He says: "In the largest proportion of cases where the diabetic diathesis occurs, no exciting cause can be assigned. A great degree of vagueness obtains concerning its origin; but among those causes alleged to have given rise to diabetes are numbered: shock, cerebral disease, exposure to cold, drinking cold water while in a heated state, mental emotion, blows on the face or thorax, sexual abuse, and, I might add, abuse of light causing retinal shock: all showing implication of some part of the great sympathetic nervous system, either within the cranium, spinal cord or its peripheral distribution." He is convinced "that diabetes should be classed among the neuroses, and that its varied phenomena result by reflexes from the nervous system just as shock may temporarily arrest the secretion of urine."

He reviews the opinions of several authorities, particularly describing the therapeutic record with antipyrine, salol, peroxide hydrogen, levulose, croton chloral, etc., and then states, that internal antiseptics, with judicious dietary, have afforded best satisfaction in his practice, and that of this class of agents benzozol is the best. He found that under this treatment, "severe cases were transformed into mild ones, while in some patients the sugar entirely disappeared; the quantity of urine excreted was lessened and the specific gravity lowered." Benzozol is a colorless, crystalline powder, insoluble in water. Dr. White prescribes the remedy in capsules, commencing with a moderate dose of one or two grains, gradually increasing to 10 or 15 grains daily; a restricted diet is ordered, with carbonate of lithium and Fowler's solution in vichy

every morning. His conclusions are that benzosol "serves the following useful purposes":

It stimulates the nerve centres.

It increases the appetite.

It lowers specific gravity of urine.

It controls the excretion of urine and, lastly, modifies sugar formation, thus lessening the amount excreted.

**BONE-MARROW.**—George B. Hunt, late house physician to Dr. Ringer in University College Hospital (London), reports (*The Lancet*, Febr. 1, 1896) three cases of pernicious anemia under treatment with bone-marrow. "The extract of red bone-marrow which was given was prepared by splitting ox ribs along the middle and scooping out the soft cancellous bone in the centre, the meshes of which contained the red marrow. This was freed from bone spicules by pounding in a mortar with a little water and passing the watery extract through fine muslin. The extract obtained from two ounces of the bone-marrow was given in the twenty-four hours." Two of the cases died, and the other passed from observation; the results were decidedly negative. The author reviews the experiences of other investigators, showing that in twelve cases of pernicious anemia (reported by Goldschneider [the first to use extract of bone-marrow], Dixon Mann, Fraser, Barrs, Stockman, Drummond, Daneforth, Billings, and himself)—"two may be excluded, as arsenic was administered at the same time; of the remaining ten cases, eight did not improve under marrow, two of them afterwards doing well under arsenic, while two, the cases of Dr. Fraser and Dr. Barrs, were greatly benefited by the bone-marrow."

The conclusion to be drawn seems to be, that bone-marrow should not be given unless a thorough course of arsenic has been given and has failed; and also: "It would be very difficult to believe that the marrow of an animal taken into the stomach and digested could form new

corpuscles, and, as the only tissue which is supposed to form new red corpuscles in the adult—i. e., the new marrow—is already greatly increased, any substance greatly stimulating this tissue to increased action would be useless." This discouraging report will not tend to promote the efforts now making here to popularize bone marrow in glycerin extract as a "blood-builder."

**ON APOLYSIN AND CITROPHEN.**—H. Hildebrand, of Elberfeld, in the *Centralblatt für innere Medicin*, Nov. 9th, 1895, says: Under the names of apolysin and citrophen two combinations of phenetidin with citric acid have lately been clinically experimented with, and recommended. They differ chemically from one another in this, that in apolysin one molecule of phenetidin is combined with one molecule of citric acid with the production of  $H_2O$ ; whilst in citrophen, on the other hand, three molecules of phenetidin are combined with one of citric acid, and without the production of  $H_2O$ . The relation of citrophen to apolysin is, therefore, like that of the lactate of paraphenetidin to lactophenin. And this difference in chemical constitution determines the different physiological action of these two bodies.

My own experiments on rabbits lead me to coincide fully with the conclusions of Dr. G. Treupel (*Deutsche Med. Wochenschrift*, 1895, No. 31); I agree with him in his emphatic warning against the unlimited use of citrophen which is identical with the ordinary citrate of phenetidin.

Apolysin has been recommended on the one hand as a more reliable and more rapid antipyretic and analgesic than phenacetin. In point of fact its poisonousness even when given by subcutaneous injection is much less than that of phenacetin. Even 8 cg. ( $1\frac{1}{4}$  grains) was well borne subcutaneously by white mice; there was no reaction; whilst even 3 cg. ( $\frac{1}{2}$  grain) of phenacetin was sufficient to call forth the characteristic phenetidin effects. These experiments demonstrate the

innocuousness of even large doses of apolysin when given subcutaneously, where of course, the product reaches the alkaline tissue fluids immediately. Its ready decomposition in the gastric juice seems to have led its first advocates to claim that its exhibition was contraindicated when the stomach was empty, or when there was hypersecretion. This contraindication need not be heeded if, instead of the strongly acid apolysin powder, the apolysin tablets are employed. These are composed of one part of bicarbonate of soda and two parts of apolysin, and they dissolve in water with effervescence. The solution tastes of bicarbonate of soda and does not react sour like apolysin, but slightly alkaline.

**THE THERAPEUTIC ABUSE OF OPIUM.**—Dr. G. Walter Barr, of Keokuk, Iowa, contributes an article to the *Journal of the American Medical Association* for January 25th (says the *New York Medical Journal*), in which he remarks that, while our knowledge of pathology and physiological action has long since passed the point of the treatment of symptoms, yet we still cling to one drug which does most of its work in relieving symptoms only. A drug, he says, which has the dynamic energy of opium must always be an equally potent agent for therapeutic good.

Chemically and physiologically, opium is perhaps the most complex drug in the pharmacopœia. It contains a large number of active principles which have been isolated, and a number more that are probably present in the crude drug, although it is maintained that they are merely products of chemical manipulation. It may also contain some that have not yet been identified as chemical entities by laboratory research. It seems a little strange, says Dr. Barr, that, with the present tendency to prescribe the use of drugs uncombined with others, so many active principles should be so often prescribed at once under the title of opium. That the combination of so many principles

has, by virtue of the correlation of physiological forces, a dynamic action of its own, is obvious; that this action, he says, can not be prognosticated with much certainty is proved by the large number of cases of alleged idiosyncrasy. That opium is of great therapeutic value is maintained at the outset; that it is overrated is also contended.

When the natural polypharmacy of opium itself is avoided, says the author, its most active constituent, morphine, is nearly always resorted to. The effects of morphine upon the secretions, upon metamorphosis, and upon the disposal of waste products are exactly what is not desired in most cases of disease. Yet morphine is usually chosen to produce certain effects upon the nervous system without regard to its energetic action in other directions.

Codeine, says Dr. Barr, is being substituted for morphine to a gratifying extent, although it is not yet fully appreciated. He states that he is thoroughly satisfied that it does not produce bad habits, even in highly sensitive neurotics, and that it acts with little energy upon the digestive tract and the heart. As a somnifacient, he says, morphine has been nearly driven out of use by the products of the modern chemist, and it should be discarded also in other fields. As a cardiac stimulant, morphine acts quickly and energetically, but the after-depression which always comes after its use may be avoided by using strychnine, nitro-glycerin, caffeine, digitalis, or even atropine, in the proper dose. To use opium or morphine for a condition of nervous excitation and exalted reflexes is, in many cases, like stunning a refractory patient with a club. Valerian, hyoscyamus, and the bromides will generally give better therapeutic results of greater permanence, and with less risk.

It is in those diseases of the digestive tract which are commonest in summer, says Dr. Barr, that opium is the medium of the most harm. Close observation, he says, must drive the physician to the con-

clusion, that very rarely indeed is opium indicated in the treatment of diarrhea. This affection usually needs some drug which increases the excretory functions, and thus drives out of the body something which, by its presence, is producing the flux from the bowel. Opium temporarily relieves the chief symptom at once, and when its influence has subsided and the disease still persists the condition is called a relapse or a new attack.

It is certainly true, says the author, that opium has a real value therapeutically in certain inflammations, in great pain, in rare forms of diarrhea, as a splint for the intestines, and in some other directions.

**FORMALINE.** — From the frequent references to the successful use of formaline and its preparations in the laboratory and the operating-room (*Medical Record*, editorial), it seems as if this substance were likely to take a permanent place among the useful additions to the physician's armamentarium. Formaline, formaldehyde, and formol are synonymous terms. Their chemical formation has been referred to already several times in these columns. Formaline is, we believe, the proprietary name given to a forty per cent. solution of formaldehyde, while, if we remember correctly, formol is a still weaker proprietary solution of the same substance. "It is the general opinion," says Dr. Squibb in his *Ephemeris*, "that formaline is superior to corrosive sublimate in its germicidal action and is far less toxic." Drs. Gegner and Hauser have made experiments in testing its antiseptic value, and similar work in this line has been done by Messrs. Slater and Rideal, of London. Formaline has been found to be an excellent preservative of pathological specimens, and it has largely taken the place of alcohol for many purposes in the laboratory. Formaline in two per cent. solutions is said to preserve the brain in excellent condition, as well as other tissues of the body. In the June number of the Canadian *Practitioner* Dr. Cullen, of

the Johns Hopkins Hospital, describes a rapid method of staining fresh tissues by the aid of formaline. By its use a piece of tumor from the operating-room can be examined and stained within fifteen minutes. His method is said also to be very useful for the examination of uterine scrapings. The method of using formaline and its products, in the disinfection of rooms and in surgery, has been referred to before in the *Medical Record*, and we call attention to the subject again because it seems to us that the substance has a practical value in many directions, and that medical men should be familiar with it.

**PHENOCOLL.** — Dr. Gino Righi, Padua, has written a lengthy article entitled "Contribution to the Study of the Anti-Malarial Action of Phenocoll," published in the *Rassegna Medica*. He concludes:

The results attained with the new remedy are, therefore, most encouraging and lead to the following conclusions:

1. Phenocoll hydrochloride is an anti-malarial remedy equal or more than equal in efficacy to quinine, and can be prescribed with confidence.
2. It not only overcomes the febrile temperature of malarial patients, but it reduces the enlargements of the spleen and the evil consequences arising from it.
3. Its action is most pronounced when administered in small doses every hour for five hours previous to the expected return of the febrile access.
4. It is innocuous to the organism, and no undesirable symptoms or disturbances arise even from continued administration daily.
5. Its taste is only slightly bitter, and can be easily corrected, so that it is readily taken by children.

**RESORCIN AND ITS EXTERNAL USE.** — Dr. J. Abbott Cantrell, Professor of Diseases of the Skin in the Phila. Polyclinic, Dermatologist to the Phila. Hospital, etc., who has contributed many valuable studies of new remedies and agents for dermatolog-

ical use, publishes the following practical and valuable summary to the Philadelphia *Polyclinic* (Feb. 15, 1896): This paper presents my experience with the use of resorcin during a period of about ten years in the practice of dermatology. The cases were taken in turn as they presented themselves at the clinic until experience had given some idea as to the class of affections benefited by it. Experience of this kind is not gained quickly, because it may be found that a drug acts well in one case while in another of the same class no benefit may be noticed. The uses to which resorcin may put are manifold. In its application it may be advisable at one time to use a solution while at another ointments will be found preferable. In the experiments reported the following preparations were used: Solutions in water ranging from 10 to 30 per cent.; solutions in collodion of the same strength as above stated; ointments ranging from 10 to 40 per cent. It was found that either petrolatum or lanolin proved the more useful ointment base in cases in which there was not much inflammation, but in those demanding a soothing application zinc oxide ointment proved more beneficial. Plasters were chosen in cases in which it was impossible to apply ointments or solutions, and their strength varied from 10 to 40 per cent. In cases of acne in which the drug was applied it was found more beneficial to make an emulsion with water, adding a small quantity of mucilage of acacia or tragacanth, and sometimes a small quantity of oil of rose. This application varied in strength from 5 to 20 per cent., according to the requirements of the case.

#### LENTIGO—CHLOASMA.

In some cases of increase of pigment, such as lentigo and chloasma, resorcin seemed to have a decided effect. In lentigo this was more noticeable than in chloasma, the pigment being removed without much trouble in the majority of instances presenting. In the latter disease the result was very often unsatisfactory,

as would have been expected from almost any form of application.

#### TINEA TRICOPHYTINAS.

In all forms of ringworm, resorcin had the effect of killing the parasite in the majority of the cases, but it was found that some instances of this disease did not respond quickly to the treatment. In the ordinary superficial ringworm (*tinea circinata*) resorcin seemed to give the desired result in a very short time, but if too strong an application was used it would produce some form of dermatitis which, if not properly understood, would be mistaken for an increase in the fungus. In that variety attacking the beard (*tinea sycosis*) the same good result was usually seen in most of the cases treated, but in some instances the drug was entirely powerless. In cases affecting the scalp (*tinea tonsurans*) the drug acted as well as most of the remedies used in the treatment of that affection, but the result was not reached quickly. In this latter variety depilation was practiced at the same time as the application. *Tinea kerion*, or the form wherein we have the formation of large abscesses, was not treated by resorcin, as milder remedies were indicated.

#### ACNE—SEBORRHEA.

Affections of the sebaceous glands seemed to be much benefited. Not only did the drug remove the accumulations that followed after a seborrhea, but assisted in stimulating the glands to the formation of a proper secretion both in quality and quantity. In those cases of acne presenting decided induration and thickening, resorcin seemed to have the power of removing the unusual collection of sebum in the follicles and to assist in the excretion of normally formed matter.

#### DYSIDROSIS—HYPERIDROSIS.

Conditions of the coiled glands in which the flow of sweat was enormous, or in which the secretion was pent up at the follicular orifices, were alike relieved under the stimulating effect of resorcin. In dysidrotic vesicles situated at these



follicular openings the epidermis was removed from the summit of the lesions and the secretions thus allowed to escape. In hyperidrosis the drug improved the quality of the secretion and decreased the quantity. In preventing the abnormal secretion it also prevented the inflammatory condition of the part.

#### SCABIES—DERMATITIS VENENATA.

In both scabies and ivy poisoning resorcin had a curative action, but as far preferable remedies can be chosen that will give the desired result more quickly, it cannot be recommended above these.

#### CLAVUS.

Corns and other horny growths were benefited greatly by the use of an ointment containing resorcin, but its action was more slow than other caustic applications.

#### PITYRIASIS—CAPITIS PSORIASIS.

Diseases presenting desquamation as a marked symptom, such as pityriasis and psoriasis, improved greatly under the use of resorcin. In the former its stimulating quality removed the scales and restored tone to the parts. In the latter it merely removed the scales and it was found advisable to give internal remedies for curative results.

#### ECZEMA.

The results gained by using resorcin in eczema were manifested in the chronic varieties. Vesicular lesions were removed quickly, but in papular eczema the drug did not give as good results. In the pustular variety resorcin appeared to remove the inflammation and accumulations. In eczema rubrum and the squamous varieties the drug gave excellent results. Eczematous conditions attacking the flexures of the joints were acted upon very favorably.

#### EPITHELIOMATA.

Epitheliomatous changes of the skin were more benefited by the use of resorcin than is the case with most other remedies. In cases of the superficial variety occurring on the face the drug gave very excellent results, but when the lesion was

found to be deep and to have destroyed a great amount of tissue, it was unable to check the further progress of the disease.

#### IMPETIGO CONTAGIOSA.

The parasitocidal action of resorcin was more noticeable in impetigo contagiosa, and in cases in which the lesions were numerous it gave the desired effect in a few days. The parasite lost the power of contagion almost as soon as the drug was applied to the affected surface.

#### AFFECTIONS OF THE NAILS.

Eczematous affections of the nails yielded rapidly to the effect of resorcin. Other affections of the nails did not respond as early. Slight hypertrophies were improved and to some extent at least restored to their normal conditions.

#### ULCERS.

In both syphilitic and non-syphilitic ulcerations the action of resorcin was found very beneficial, whether the drug was used in powder or as an ointment. As an assistant in the restoration of destroyed tissue, the drug acted marvelously, and if the person were confined to bed during the treatment the action was even more noticeable.

**TREATMENT OF GONORRHEA.**—Ulisie and Salvatore (*British Med. Journ.*, *Maryl. Med. Journ.*) have tried, with good results, the treatment of gonorrhea by means of permanganate of potassium solutions made by dissolving 5 grms. of the salt in 5 liters of water. Of this solution about one quarter of a liter was allowed to flow into the urethra through a double way catheter, from a vessel held at a height of a meter and a half. If the posterior urethra was affected the solution was made to flow there by closing the exit pipe of the catheter. After a short time the resistance of the sphincter was overcome and about 300 grms. of the liquid allowed to flow into the bladder. As far as the anterior urethral injections were concerned little more than a mere burning sensation was noticed, hardly any pain. In the case of the posterior urethra some pain was caused, but, as a rule, not severe. The treatment is useful in the very first 2 or 3 days, and then later, but not during the acute stage.

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## Original Articles.

### *BETA-NAPHTHOL IN THE TREATMENT OF CUTANEOUS DISEASES.*

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In presenting the following paper I do not disdain to take notice of former articles upon the use of beta-naphthol in the treatment of cutaneous maladies, but I wish to record my personal experience with the drug covering a period of about ten years, and in referring to this treatment I hope to make myself plainly understood, as I shall take care of the matter that has been in time past presented at one or several of my clinical services. In the use of beta-naphthol I generally prepared one of the following plans. Solutions with water in strengths varying from 2 to 15 per cent., also solutions in olive oil from 2 to 12 per cent. strengths, alcoholic solutions of 2 to 12 per cent. Ointments were advised in a great many instances, either with lanolin, petrolatum, or the ointment of zinc oxide, in strengths varying from 2 to 12 per cent. The cases treated with this agent were chosen from those presenting themselves at the clinic and usually with the idea that the drug was a stimulant, therefore no acute case was treated with beta-naphthol.

#### ECZEMA.

In eczematous conditions the use of the drug was entirely confined to the more chronic cases, and where there was the slightest sign of acute inflammation as in the erythematous, vesicular, or pustular

varieties it was found that the drug increased the discomfort. In the papular, vesicular and pustular varieties after the removal of the acuteness of the inflammation, beta-naphthol seemed to have an admirable effect in relieving the patient, and bringing about an early cure. In the squamous variety which at all times is the more chronic condition of eczema the relief of the affection was indeed marvelous in some of the cases. In eczema rubrum it seemed to give excellent results in the more chronic of the cases, such as had been of years duration upon the legs, as we often see in elderly persons. In cases of eczema where great amount of thickening or induration had taken place the drug seemed to give all that could be desired in the majority of those presented at our service.

#### DISEASES OF THE SEBACEOUS GLANDS.

Acne of the papular manifestation, where induration had already occurred, recovered under the judicious application of beta-naphthol. It seemed that the drug possessed just the power to stimulate the sebiparous glands properly, thus giving an early and increased flow of normal sebum. The pustular variety did not respond in the same strain until after the disappearance of the acute inflammation. Abnormal collection of sebaceous matter upon the skin at the follicular openings, as we find in seborrhea, was entirely removed, and thus gave the drug a chance to stimulate the underlying structures to the formation as well as discharge of a normal secretion. Oily seborrhea was benefited in a like degree, so that in a short time there were no collections of these oily globules upon the general surface.

**DISEASES OF THE SWEAT GLANDS.**

Affections of the coil glands did not respond to the same extent that was witnessed in seborrhea or acne, but the stimulating powers of beta-naphthol impressed all this class of diseases to some good results. Hyperidrosis received the most benefit, while chromodrosis and bromodrosis where not even relieved. Miliaria papules were dissipated by the action of beta-naphthol.

**PRURITIC AFFECTIONS.**

Pruritus and affections in which itching is so marked a symptom, were greatly benefited by the application of a wash containing beta-naphthol. Urticaria, a disease in which itching is the main disagreeable sensation, was greatly relieved by its use. The itching of eczema as well as most of the cutaneous eruptions could be removed by its application provided other symptoms did not prevent its being advised. Dermatalgia, or that form of pruritus in which neuralgic sensations are so prominent symptoms, improved decidedly while under treatment with beta-naphthol.

**PITYRIASIS CAPITIS.**

Scaly conditions of the scalp, such as pityriasis, were decidedly impressed with the action of the drug, and in most cases the desquamation was diminished very greatly, and it was found in a short while that beta-naphthol gave an improved tone to the epithelial layers of the skin.

**PSORIASIS.**

Desquamative eruptions of a graver nature, such as psoriasis, in which the scaliness is a marked and most annoying symptom, I found that beta-naphthol removed all the scales, and favorably impressed the disease, but I do not think that it was in any manner curative, except what little results may be received by external measures in that disease, my belief being that internal treatment, and that alone will give any decided results.

**ALOPECIA.**

As a stimulant to the hair, I feel that beta-naphthol will take the first position,

and in all diseases in which we have a decided fall or loss of the hair the drug will assist greatly in restoring the tresses to their normal condition. It not only stimulates the growth of the hair, but alike it stimulates and gives health to dry, brittle or broken hair. Naturally one would not suppose that any results could be gained in senile loss of hair, but I refer to those conditions of loss in circles, or alopecia areata, or where there is a general thinning upon any portion of the head or beard or whatnot. In children, who have lost considerable hair from or after an attack of some disease, which decreases the nerve tone, I have gotten good results with the use of this drug.

**ULCERS.**

Non-syphilitic ulcerations when situated upon the ankles, and in connection with an eczematous process or a collection of varicose veins, gave excellent results under the treatment with beta-naphthol, and it seemed the more chronic the ulcer the better the result. Syphilitic breaks in the skin responded very soon to the application of this drug, while the patients were taking small doses of iodide of potassium internally. In those cases where much induration existed the effects were remarkable and soon witnessed. After applying beta-naphthol to these syphilitic sores it could be seen that the edges of the ulcer soon took on a healthy looking appearance and commenced to heal from the bottom.

**ANIMAL PARASITIC AFFECTIONS.**

Of the animal parasitic affections, it seemed that scabies was the disease in which beta-naphthol gave the best results. I found that with the application of an ointment containing beta-naphthol, this disease responded more quickly than with any other remedy. My plan was to use one dram to one ounce of an ointment base, as for instance pure lard or petrolatum, having the patient take a bath upon the evening of the first application, and then to apply the drug thoroughly over the entire body and then to place on

a clean suit of underwear; and follow the application of the ointment every night upon retiring until the end of five days when the same process is undertaken, the patient taking a bath, being thoroughly examined to see if any disease still remains, and if so, he is given another trial of the same time, and so on until the case is cured. In many cases, it will be found preferable to add about the same quantity of sublimed sulphur, which will in all probability assist greatly in the cure. Should it be found that very much eczema is an accompaniment of the scabies, it will then be advisable to diminish your beta-naphthol at least one-half. I myself have seen no ill results from using so strong an application, and I speak of this at this moment because so many others have stated that they could not use so great a dose. Pediculosis does not respond so quickly and so well from the use of this drug, and I myself have long ago laid it aside as a treatment for this condition.

#### IMPETIGO CONTAGIOSA.

Of the milder parasitic affections such as impetigo contagiosa I received excellent results by using beta-naphthol in the treatment, and it mattered little what the strength of the application, but I usually gave one of the above mentioned formulæ.

#### VEGETABLE PARASITIC AFFECTIONS.

Tinea circinata, or ringworm of the general non-hairy parts so-called, was impressed very quickly by this drug, and it was found that the milder ointments were sufficient to give this result. Ringworm of the beard, or tinea sycosis, did not give as good result as did the former variety, but if continuously used it responded after a time. Tinea tonsurans, ringworm of the hairy scalp, was treated by beta-naphthol in many instances and the results did not gratify the wishes of the patient or the practitioner, and, therefore, after a few trials it was laid aside as only a possible remedy for this class of cases.

Favus, or tinea favosa, or honey comb ringworm did not respond to its use as was expected.

#### SUMMARY.

- (1) Beta-naphthol proved decidedly useful in scabies.
- (2) Beta-naphthol cured tinea circinata in a short time, but did not give so good results in other forms of ringworm.
- (3) Beta-naphthol was a good antipyretic.
- (4) Beta-naphthol has very decided stimulating qualities.
- (5) Beta-naphthol proved of more service in chronic inflammations of the skin.

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#### INTERNAL ANTISEPSIS.

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At the beginning of this article, I would like to call attention to the fact that there are too many optimists and too many pessimists, so far as the desinfection of the intestine is concerned. It is ridiculous to imagine that a drop or two of iodine or carbolic acid, both diffusible and readily absorbable drugs, will pass through the stomach and exercise any appreciable action in disinfecting a mass of fæces. Yet, such was the advanced treatment of typhoid less than a decade ago. It is equally fallacious, because we cannot transform the fæces into an inoffensive discharge and make the intestinal mucous membrane as free from germ-life as a fresh wound, to abandon all attempts at counteracting sui-intoxication from the contents of the bowel. In the past, the scientific researches of bacteriologists have not been sufficiently tempered with clinical wisdom. Such and such a drug, added in a certain percentage to a pure culture of some resistant bacterium, like that of anthrax, fails to sterilize the contents of the test-tube. Therefore, the profession is advised that the drug in question is worthless as an antiseptic. The argument is a good one from the stand-point of the germ-botanist, but not necessarily

applicable to the practical exigencies of medicine and surgery. We can dump a bushel of salt at the foot of an oak tree without affecting its growth in the least, but may we infer that the judicious use of a quart of salt will be equally inefficient in destroying grass in a garden path? So, in regard to microscopic plants, the bacteriologist too often forgets that his experiments deal with germs either naturally resistant or artificially luxuriant on account of cultivation on favorable soil, and that the chemical which will not sterilize a test-tube may kill, or, at least, hold in check, less obstinate scattered germs growing in natural and less favorable media of the body.

The man who sprinkles disinfectants on a pile of manure or into a cess-pool, is not as rational as the one who has the mass of filth removed bodily. Analogously, we must remember that a cathartic to empty the fermenting contents of the small intestine or a copious enema to cleanse the lower bowel, smarting and burning with the irritation of acid fæces and bacterial products, is the first thing to think of in the attempt to secure intestinal asepsis. I may be pardoned for digressing to the extent of applying the same principle of common sense to the stomach. Within a day or two I have removed, by lavage from a dilated stomach, bits of meat swallowed at least twenty hours previously, a raisin seed dating back a week, and a piece of sausage skin taken fourteen days previously. The patient objected strenuously to the passage of the tube, and, at first, insisted that I ought to know enough to find the right kind of medicine for his complaint. But he surrendered completely at the exhibition of the stinking, putrefying mass.

There are cases, however, in which it is out of the question to weaken the patient by repeated catharsis, in which there is no manifest indication for lavage and in which the part of the bowel accessible to injections is normal, yet which call for intestinal antisepsis. Consider, for example,

the conditions present in typhoid. We have to deal, it is true, with a constitutional disease, but one accompanied by distinct local inflammation and ulceration. We must think both of the intestinal lesion and the profound poisoning by the chemical secretion of germs present in large proportion in the wall of the intestine and in the fæces. I claim that a rational and complete treatment of the disease includes an effort at intestinal antisepsis. I am not ignorant of the fact that many typhoid bacilli exist outside of the intestine; I do not hope to kill the germs deeply infiltrated into the intestinal wall; I do not even believe that medicines will render the intestinal contents absolutely aseptic. But I do believe it possible to kill or hold in check a considerable proportion of whatever bacteria happen to be free in the intestinal contents, including typhoid bacilli and non-specific but toxic germs. I believe that germs lying superficially in intestinal ulcers are destroyed or rendered inactive, and that an inflamed area is less liable to break down into an ulcer, or, if it does ulcerate, will heal more rapidly if bathed with a comparatively bland chyle, instead of one irritating from the presence of organic acids of fermentation and charged with less easily demonstrable but more insidious poisons of bacterial origin. The surgeon may sneer at me, because I can not get the typhoid ulcers as clean as the ones in plain sight with which he has to deal; the hygienist may regard my efforts as futile, because disinfection of fæces outside the body is still necessary as a prophylactic measure; the empiricist may count me old-fashioned, because I do not regard the typhoid patient as an amphibious animal, and discard all medicines for the tub; but, incomplete as intestinal asepsis must remain, logic and experience both support the conviction that it is the duty of the physician to do his best to keep the alimentary canal as free as possible from disease germs.

There are many conditions of intestinal indigestion in which flatulence, "bloat-

ing," and more or less discomfort are prominent symptoms. In many of these cases, peristalsis is sluggish and laxatives are plainly indicated. In others, the bowels move often enough, and any attempt at further cleansing with cathartics—pardon the tautology—will prove intolerable. Sometimes a gastric disturbance lies behind the intestinal, and all that is necessary is to correct the former so that the chyme shall enter the intestine free from active fermentation. This indication is met, in nine cases out of ten, by giving hydrochloric acid, the normal gastric antiseptic and digestant, after meals. Rarely, some other condition exists, and even when the main deficiency is in the hydrochloric acidity of the stomach, a cure will be hastened by adding a direct gastrointestinal antiseptic. Again, there are cases, which—so far as an exact diagnosis can be made *ante mortem*—we must consider as chronic enteritis, with an increased secretion of mucus affording a nidus for germs; with sluggish peristalsis, allowing ample time for fermentation and putrefaction, and with a consequent increase of acid and gaseous products of bacterial life. Such a case, slowly progressing toward a favorable issue, under my observation, dates back several years to repeated overdoses of arsenic administered by a physician who was at least consistent enough to kill himself sometime later by an overdose of chloral. Somewhat similar symptoms appear as the result of excessive use of tea and coffee, as in a case at present under treatment. Sometimes the symptoms can be traced to no adequate cause and exist in spite of apparently perfect gastric digestion. The choleras, dysentery, and chronic colitis—often wrongly called dysentery—may also be cited as conditions demanding intestinal antiseptics.

How shall we treat such cases? Lavage and entero-clysis are of great value in cholera nostra, providing the patient can or will tolerate mechanical interference. It is scarcely necessary to call attention to

the fact that cholera infantum is no more a separate disease than bronchitis infantum. The most enthusiastic reports of the benefits of entero-clysis refer to the treatment of little children, and, I am inclined to think, because the little patients can not enter their protest against the use of the tube, as older patients often do. But, without reference to the wishes of patients, it must be recognized that not every case ought to be treated by washing either the stomach or bowel, and that the most rigorous hydrotherapy leaves uncleansed from five feet of intestine in the infant, to fifteen in the adult. Mercurials have proved especially useful in the treatment of cholera nostra, because they are antiseptic while, at the same time, the disease is usually of so short duration that intolerance of the drug is not developed. Even here, however, it is questionable whether some organic and slowly soluble drug, such as those to be described later, will not be more appropriate.

In typhoid or the more or less chronic catarrhs or functional indigestions, mercurials are obviously out of the question, unless as a temporary course, whether the main object be catharsis or not. Iodine and carbolic acid have already been alluded to. Even if they really reached the intestine, without producing toxic symptoms, an enormous dose of either would be needed. Tincture of iodine has been shown to be a fairly efficient antiseptic in empyemas, in a strength of 1:1500. The maintenance of such a strength in the intestine, allowing for the fact that it is by no means a distended cylinder, would at least require 2 ccm. or about 60 drops. The maximum dose of carbolic acid is usually stated at 0.20, and if every particle of this passed through the pylorus, the resultant solution would still be only a hundredth of a 1 per cent. solution, an absolutely worthless strength.

Iodoform has been recommended as an intestinal antiseptic, 0.20 being administered in capsule, four or five times daily or

even oftener. I have used this drug with good results in typhoid but always with apprehension of poisonous effects, so that I was led to alternate it with other substances. Iodine compounds are among the most treacherous with which the physician has to deal, not even excepting colchicum. There are few premonitory symptoms, there are considerable and inexplicable variations in tolerance, and the centers are often attacked so that no treatment is availing.

Charcoal, I have used considerably, both in gastric and intestinal diseases, for the sake of absorbing gases and toxins. Bouchard has demonstrated that the urine becomes less toxic after the administration of charcoal. As usually given, however, it is almost worthless, because of the insignificant dose and its damp state. It must be thoroughly dried before administration and must be given in doses of half a teaspoonful or more to be efficient. It may be given in capsule to those who choke over the dusty powder, but many can not or will not take it at all.

Menthol is an excellent antiseptic for stomach and intestine. I usually employ ten centigram doses, two or three hours after meals to act in the intestine. For the stomach I prefer to spray it through the stomach-tube. Aside from its antiseptic properties, this drug is stimulating to the local blood supply and, hence, to secretion, and it also relieves painful spasm of smooth muscle.

Salol is a good intestinal antiseptic to the extent of being pleasant in taste and comparatively insoluble. There used to be a fiction that it was not absorbed from the stomach on account of the acid reaction and that its appearance—or rather the appearance of salicyluric acid—in the urine indicated the time at which the drug passed the pylorus, allowing for the delay of absorption and elimination. I have already published a series of cases proving that no reliance can be placed on the test, and a German investigator has shown that mucus in the stomach or any condi-

tion preventing the passage of salol into the intestine allows it to be absorbed through the gastric vessels. However, it is certain that in the alkaline juice of the intestine, salol is decomposed into salicylic and carbolic radicals. Death has been reported from a gram dose administered in testing gastric motility and, in one of my patients, ten centigram doses repeated four or five times, caused darkening of the urine, nausea, and depression undoubtedly due to the drug and not to some accidental occurrence, since they recurred two or three times when the drug was recommenced.

Salacetol is a combination of salicylic and acetic radicals, analogous to salol and, for practical purposes, it may be considered a non-toxic salol, since carbolic poisoning sets in from a much smaller dose than salicylic poisoning, while the acetic radical is harmless. It is true that salacetol lacks somewhat in antiseptic power as compared with salol, but a very slight increase in dose compensates for the loss, and 0.25 or 0.50 gm. may be administered with very little apprehension. Salacetol is almost insoluble in water, but forms an emulsion in an alkaline medium so that it is almost an ideal antiseptic for the intestine.

If a marked tendency to diarrhea exists, either in typhoid or in any other condition demanding intestinal antiseptics, bismuth may be given with advantage. Bismuth subgallate is rather more astringent than the subcarbonate or subnitrate, and the subsalicylate is superior as an antiseptic. Still, all salts of bismuth unite, in varying degrees, antiseptic and astringent properties. The subgallate and subsalicylate are usually administered in doses of 0.25 to 0.50 gm. To produce a decided checking of a diarrhea, a larger dose is needed, rising to at least two or three grams of the mild subnitrate and subcarbonate.

The naphthols differ from the phenols, salicylates, etc., in being based on two linked aromatic rings instead of one, and are nearly twice as powerful antiseptics

while much less toxic. Naphthalin is an excellent intestinal antiseptic in doses of about 0.50 gm. but has an objectionable odor. Of its two hydrates,  $\alpha$ - and  $\beta$ -naphthol, the former is more powerful and less toxic, though the latter is usually employed. Hydronaphthol, though usually considered a double hydrate, is apparently proved by D. D. Stewart to be an impure  $\beta$ -naphthol. It is soluble in about two parts of water and is an excellent substitute for carbolic acid for keeping instruments aseptic, though feebly antiseptic as shown by the development of mold on leather, etc., wet with a saturated solution and then kept in a warm and damp place. It is altogether too irritating for internal use, considering that we have better drugs to choose from. Even the hands are irritated by it, the sensation being that of a web between the fingers, the web smarting to a painful degree.

Naphthol salicylate, corresponding to salol and called betol, is an excellent antiseptic; but benzo-naphthol, is somewhat superior. It is almost non-toxic and, though 0.50 to 1 grm. is a sufficient dose, much larger amounts may be given for a few doses.

The following prescriptions, copied from case records, are appended simply as hints for the practical combination of the drugs referred to.

**R** Menthol ..... 0.10  
Benzo-naphthol ..... 0.50

**Ft. chartulæ tales No. xx.** S. One three hours p. c. (For case of dilated stomach with extreme putrefaction, food having been removed positively, identified by patient as having been taken seven and fourteen days previously, respectively).

**R** Menthol ..... 0.10  
Papain ..... 0.25  
Benzo-naphthol ..... 0.50

(In all cases, I write for sample powders, instead of directing the druggist to divide into so many parts. The corresponding direction will be understood for all these prescriptions). S. One, one hour p. c. (Dilatation of stomach, secondary to carcinoma of pylorus, with lack of digestive secretion).

**R** Menthol ..... 0.10  
Salol (or Salacetol, 0.25) ... 0.10  
Bismuth subgallate ..... 2.00

S. One, three hours p. c. (Moderate diarrhea, chronic intestinal indigestion, without apparent involvement of stomach).

**R** Menthol ..... 0.10  
Salol (or Salacetol, 0.25) ... 0.10  
Carbonis exsiccati ..... 2.00

S. One, three hours p. c. (Subacidity of stomach with flatulence, and development of organic acids. Intestine also involved. In conjunction with HCl, 1 hour p. c.).

**R** Menthol ..... 0.10  
Benzo-naphthol ..... 0.50  
Bismuth subgallate ..... 2.00

S. One, three hours p. c. (Intestinal fermentation, with tendency to diarrhea).

**R** Menthol ..... 0.10  
Pulv. cardamomi ..... 1.00

S. One, before each meal. (Subacid and atonic dyspepsia. Some gastralgia. Intended rather to stimulate blood supply and secretion and to relieve pain, than as an antiseptic. With HCl, 1 hour p. c.).

174 Franklin St., Buffalo, N. Y.

(1) *GONORRHEAL CONJUNCTIVITIS.*  
(2) *MYRINGITIS BULLOSA.* (3) *PHENOL SULPHORICINATE IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS.* (4) *NEW METHOD OF STERILIZING COTTON.\**

By WM. CHEATHAM, M.D.,

Professor of Ophthalmology, Otology and Laryngology  
in the Louisville Medical College, etc.,  
Louisville, Ky.

I have recently seen several cases which I think may be interesting. The first is a case of a man who has had several attacks of gonorrhea, and each time without inoculation he has developed a severe conjunctivitis, due, I suppose, to absorption of the gonococci or the toxine of same or whatever may be the cause of gonorrhea, without any of the extensive suppuration that we see in gonorrheal ophthalmia. There was a thin mucous discharge from both eyes, but without the severe discharge that obtains in gonorrheal ophthalmia. There was evidently no inoculation from gonorrheal secretion. The ocular conjunctiva, as well as that of the lids, was involved.

Another case which is new to me occurred in the person of a lady, aged fifty-seven years, who has had frequent attacks

\* Read before the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.



and relapses of ear trouble. I treated her on one or two occasions for eczema of the canal. The last time she gave a little different history from the other attacks. Examining her closely, I find that she has what a recent author calls myringitis bullosæ—blebs or blisters of the drum head. She says her ear feels full for several days with more or less pain, then a sensation as if something had broken with a slight discharge. At different times I have punctured several of the blebs. I made the diagnosis of blisters of drum head, but the condition corresponds in every respect to the description of myringitis bullosa.

I have lately treated by a new method several cases of tubercular laryngitis with a great deal of satisfaction. Before I commenced this treatment, I do not think I ever saw any improvement in a case of tubercular laryngitis under any method either constitutional or local. I have treated a great many cases by the usual methods, curetting, lactic acid, etc. Under such methods a good many cases have been reported cured, but I have not been fortunate enough to see them. Improvement in pain and all local symptoms has been so marked under the use of the new treatment which I shall mention, that I thought it would be well to speak of it. It is called phenol sulphoricinate and is applied locally. It can be obtained from Flexner, of this city, and I read you his description of the preparation: "Phenol sulphoricinate is a mixture of crystallized carbolic acid and sodium sulphoricinate. The latter substance was discovered some years ago by Kobert, and introduced into medicine and pharmacy under the name of solvine\* or polysolve. It is prepared

by treating castor oil with a definite proportion of sulphuric acid, when a combination takes place, which is neutralized with sodium, combined with a certain proportion of water, and is a solvent also for many of the metallic salts. It increases the miscibility also of the various oils, petroleum ethers, and other similar substances with water to a decided extent, and this with its great antiseptic and preserving properties has recently been the cause of its re-introduction into therapeutics. The combination with sodium and carbolic acid is that which has been used in France under the name of phenol sulphuric."\*

One patient, in whose case I used this preparation, has been under the observation and in the hands of several different practitioners. He has been in Asheville under Dr. Klebs, also in Philadelphia under Dr. Cobin, and came back from the latter gentleman much improved. Under local applications of phenol sulphoricinate, as used by Dr. Cobin, all symptoms have continued to improve. There was considerable hypertrophied tissue projecting over the vocal cords, all of which has largely disappeared under this application.

In another more severe case, with a great deal of ulceration about the larynx and swelling of the arytenoids, the application of this preparation has caused a rapid subsidence of all symptoms; pain has become less severe, swelling of the epiglottis has subsided, and the ulceration seems to be growing smaller. As before stated this is the only remedy under which I have seen improvement of tubercular laryngitis, either from local or constitutional treatment, although many cases have been reported where improvement has followed other means.

The treatment is too new, to speak

\* Polysolve, or solvine, was 'discovered' and first prepared and introduced by Dr. J. Mueller-Jacobs, and came under the writer's notice as early as 1888, when Messrs. Lehn & Fink, of New York, who were (and are still, we think) agents for polysolve, prepared a dozen solutions for Dr. G. H. Fox, the eminent dermatologist, who exhibited them to the New York State Medical Society at Albany. The solutions were as follows: Polysolve (or solvine) with: 5 per cent. iodol; 2 p. c. iodoform; 7 p. c. iodine; 3 p. c. chrysarobin; 25 p. c. resorcin; 10 p. c. naphthalin;

10 p. c.  $\beta$ -naphtol; 10 p. c. ess. oil mustard; 5 p. c. oleate zinc; 5 p. c. cocaine muriate; 25 p. c. camphor; 10 p. c. quinine sulphate. This wonderful solvent seemed at that time to have great promise as a dermatological agent, but though occasionally mentioned during these years, it has not proved acceptable. Its revival occasionally is only spasmodic.—ED.

positively of results, yet in my hands it has given more improvement in a short time than any other.

I have recently read in one of our medical journals of a new method of sterilizing cotton, which may be of interest to those who have not seen the article: A pledget of cotton on a probe is dipped in a saturated solution of boric acid and alcohol, then touching a lighted match to the cotton, the alcohol is burned leaving the cotton thoroughly sterilized, the pledget being saturated with boric acid and perfectly clean. This is the most rapid method of sterilization that I have seen. The alcohol in burning is entirely destroyed, leaving the cotton saturated with boric acid absolutely sterile.

#### REMARKS.

Dr. J. W. Irwin:—What is the immediate effect of phenol sulphoricinate upon the tissues?

Dr. Wm. Cheatham:—There is apparently no immediate effect; application is comparatively easy, and patients complain of little pain. I apply it with an ordinary mop, brushing over the larynx as best I can. I have seen ulcerations about the larynx gradually heal under the effect of this remedy, although none have entirely closed. I nearly always take the precaution to spray the larynx with cocaine; sometimes I pour a little albolene with cocaine over the mop after having dipped it into this preparation, and very little pain is caused.

Dr. S. G. Dabney:—The cases reported by Dr. Cheatham are of a great deal of interest. There are other diseases of the eye that are affected by gonorrhea without any direct inoculation of the gonococci. Possibly all of us have seen gonorrheal inflammation of the iris generally occurring with gonorrheal rheumatism, in which there has been no direct transmission of poison from the urethra or other sources to the eye.

I remember having read the report referred to by Dr. Cheatham. It was by Dr. Allport, of Minneapolis, where he

stated there were two or three little blebs on the outer surface of the drum membrane attended by some watery discharge from the ear, but in his cases recovery was rapid. In his report he said patients were all right within twenty-four hours. They were cases of myringitis bullosa.

I hope the remedy, phenol sulphoricinate, mentioned by Dr. Cheatham, will prove more effective in the treatment of tubercular laryngitis than others have done from time to time that have aroused a great deal of hope. Some years ago, great confidence was placed in a twenty per cent. solution of lactic acid in the treatment of this obstinate affection; it was thought to have a decided curative influence. Many operative procedures, devised mostly by German surgeons, have been practiced, but none have proven of permanent benefit. I have seen two cases of tubercular laryngitis recover. One was a little boy, the child of a physician living in this State, who went South, remaining in North Carolina during one winter. I was a little uncertain about the diagnosis in this case, and must confess that no bacteriologic examination was made, but I believe it was correct, and Dr. Frank C. Wilson examined the boy's chest and reported that he found a distinct tuberculous deposit. The other case was in the person of a man who was treated by Dr. J. M. Ray, at the time the Koch lymph was in vogue, which had no effect though it was faithfully tried. He went East, even to Europe and Asia, and remained away two or three years. He finally came back here; I saw him last spring, and he stated that he had fully recovered. A few weeks later he again began complaining, his voice became much impaired, and he could not speak above a whisper. A great many physicians have examined him at different times, many of whom believed the trouble to be syphilitic laryngitis. There is no doubt in my mind, however, that the trouble was tuberculous. The last time I saw him there was a web-like membrane between the vocal cords, at-

taching one cord to the other and interfering with the voice, and I really felt very much inclined to cut it. I believe this could have been done. But his general health began to fail and he wisely left this part of the country again.

Dr. T. C. Evans.—I have recently had occasion to look up the matter of tubercular laryngitis, and like Dr. Dabney have been impressed with the absolute failure of any measures adopted in regard to permanent results. Within the last eighteen months the surgical treatment of this affection has received a great deal of attention. I have read the report of Gleitsmann, of New York, in a paper read before the British Medical Association, in which he does not record a single permanent cure. I have never seen any marked improvement follow any method of treatment in tubercular laryngitis; one symptom may seem a little better and another a little worse each time patients visit us, but there is really no permanent improvement.

I saw the patient Dr. Dabney has spoken of, and he certainly had a most remarkable looking throat; there was entire destruction of the arytenoid cartilage on one side and on the other it was very much smaller than normal; there was no motion between the arytenoid and the cricoid as far as I was able to make out. He was simply able to articulate by the means of fibrous bands, which were not true vocal cords. It was certainly the most remarkable looking larynx that I have ever seen. He had visited almost every specialist of any prominence from San Francisco to New York; he knew, or knew of, all the throat specialists in this country, and had been to see the majority of them. He has had bacteriological examinations made by a great many people, all of whom agreed that the trouble was tubercular laryngitis. I did not see him in the active stage, but after cicatrization had taken place.

Dr. J. W. Irwin.—The sample of medicine presented by Dr. Cheatham for the

cure of tubercular laryngitis is worthy of a great deal of attention in that it offers us a very easy way of treating the disease. It is too soon to state just what this remedy will accomplish, but his report is encouraging. The remedy seems to be an improvement upon operative procedures. I must confess that I have never seen a case of tubercular laryngitis get well; nor have I seen more than slight temporary improvement in any case in an experience of over twenty years. On the other hand I have found tubercular laryngitis to be the most rapidly fatal of all forms of phthisis except the miliary variety. Any amelioration brought about by the treatment suggested by Dr. Cheatham is an advance in the right direction.

Dr. Wm. Cheatham:—One great difficulty in treating all forms of laryngeal affections, is to get rest for the larynx. The parts are kept in almost constant motion which interferes markedly with the cure. These cases do a great deal better under tracheotomy, as in that way we practically secure rest for the larynx. The air we breathe contains foreign substances which keep up a constant local irritation and retard improvement.

I do not say that the remedy I have mentioned to-night will cure tubercular laryngitis, but I have secured more favorable results in a shorter time than by any other method I have employed.

Dr. T. C. Evans:—Is it not a fact that motion is continued during respiration even after a tracheotomy has been performed?

Dr. Wm. Cheatham:—A tracheotomy rests by shutting out the current of air, but motion would be kept up to a certain extent.

VIVISECTION IN SWITZERLAND.—Recently the people of the Swiss canton of Schwyz voted by referendum (*Scientific American*) on the question whether vivisection should be permitted in the canton or not. A motion to prohibit vivisection entirely was rejected by 36,476 votes against 17,297, and a proposal of the local Society for the Prevention of Cruelty to Animals to allow the practice of vivisection for bona fide scientific purposes was adopted by 35,191 against 19,554 votes.

ON THE ALLEGED OPPOSITE ACTION OF LARGE AND SMALL DOSES OF DRUGS.\*

By N. S. DAVIS, M.D., of Chicago, Ill.

Perhaps there is no more familiar statement to be found on the pages of our standard works devoted to therapeutics and clinical medicine, than that certain drugs when taken in *small doses* are stimulant, restorative, and tonic; in *larger doses*, depressing, debilitating, or paralyzing; and in still *larger doses*, rapidly destructive to life.

Closer examination will show that this claim of widely diverse and even directly opposite effects, by simply changing the size of the dose, is limited mostly to the drugs recognized as anesthetics and narcotics, of which ether, chloroform, alcohol, and opium with its active constituents, are the most familiar and important. Thus, a recent writer says, "Alcohol in small amounts *excites* and in large doses *depresses* both the peripheral motor and sensory nerves." Again: "In small amounts the drug stimulates the cerebral functions; it afterward, especially in large quantities, depresses, and finally abolishes them." And again: "The drug in small quantities causes a rise of the arterial pressure by a direct action on the heart; in large amounts it depresses the arterial pressure similarly through a cardiac influence."

I make these quotations to show that the alleged opposite action of different doses of the same drug is not supposed to depend upon any indirect influence caused by acting variously on different organs or tissues. On the contrary, the opposite action is alleged to take place directly upon the same structures and functions, whether it be of the peripheral nerves, the cerebral convolutions, the cardiac struc-

tures, etc. And the contrast is everywhere alleged to exist between *small* and *large* doses, but nowhere are we informed as to what constitutes a reliably *small dose* or a *large dose*, of any of the class of drugs under consideration. If it were true that a small dose of a given drug excited, stimulated, or increased the activity and efficiency of any organ or function, and a large dose produced directly the opposite effect, it is plain that a reliable decision as to how much constitutes a large or a small dose is of the greatest practical importance. And it is for the want of such a decision or standard of division between what is a small and a large dose that our therapeutic and clinical literature is filled with the most confusing, contradictory, and inconsistent statements. Thus, one writer says regarding the treatment of diphtheria, "Give alcohol in heroic doses." Another, referring to pneumonia, says: "It may be that only a *few ounces* of brandy will be required to carry a pneumonia patient through a critical period, or it may be that its *free* administration will be required to save life." In the same disease, Jurgensen also recommends "the use of *alcoholics* in large doses." And Liebermeister, referring to the treatment of typhoid fever, says: "If a considerable degree of cardiac weakness appears, we give spirituous stimulants to all patients, those who have been taking them before being given a *much larger amount*, or being changed from a *weaker* to a *stronger* liquor." In strict harmony with such teaching, I have many times seen patients in consultation in the advanced stages of diphtheria, typhoid fever, and pneumonia, who had been taking from one to six weeks, whisky or brandy at the rate of from ten to sixteen ounces per day. Indeed it may be said that the *clinical* rule generally followed by those who use it, is that the weaker the heart, the greater the prostration of the patient, the *larger* and *more frequent* must be the alcoholic doses. And yet all the therapeutists insist that it is the *small amounts*

\* Written for the British Medical Temperance Association, and published in *The Medical Pioneer*. Reprinted from the "Bulletin of the American Medical Temperance Association," Nov. 1895.

that excite or strengthen, and the *large doses* that depress or destroy. If from eight to sixteen ounces of brandy or whiskey per day can be ranked as "small amounts," pray tell what would constitute a "large amount."

No further illustrations are needed to show that the therapeutical distinction between the action of small and large doses, is entirely disregarded by the clinician at the bedside of his patient. He gives small doses for slight weakness, and regularly increases the amount with every increase of the weakness, until his patient either recovers or dies. If there is any such opposite action between small and large doses of our anesthetics and narcotics, why have not our clinicians discovered the dividing line long before this time? And if there is really no such *opposite action* in the clinical use of these drugs, but small and large doses actually act on the same structures and functions in the same direction, simply increasing, *pari passu*, with the increase of dose, what is the nature of that action? Is it that of a stimulant and tonic capable of increasing the activity or the efficiency of any structure or function in the living body; or does it depress and retard every process and function subjected to its influence, in direct ratio to the quantity used?

These are questions correct answers to which are of momentous importance, both to the honor of the medical profession and to the welfare of the human race. That alcohol, ether, and chloroform readily enter the blood and exert an influence directly on the corpuscular elements of that fluid in such a way as to lessen the hemoglobin, attract water from the corpuscles, diminish the activity of the leucocytes, and also diminish the reception of oxygen from the pulmonary air vesicles, and its distribution to the systemic capillaries, is most clearly demonstrated by the researches of several reliable investigators, among whom may be mentioned Sir B. W. Richardson, George Harley, J. E. Usher, J. D. Kales, J. Dogiel, and especi-

ally John Chalmers da Costa, whose recent interesting paper on "The Blood Alterations of Ether-anesthesia" may be found in *The Medical News*, Philadelphia, March 2, 1895. That the presence of any of these drugs in the blood, directly diminishes the activity of the metabolic processes, both constructive and disintegrative, *in direct ratio to the quantity of the drug used*, has been proved by all the investigations bearing on the subject during the last half century. The more recent experiments of Dr. Mohilinsky on healthy young men, showed this diminution of metabolism to be nearly 9 per cent. when under the influence of from *two to five* ounces of alcohol per day.

This effect was correctly attributed by V. A. Manassein and Schmiedeberg "to the influence of alcohol in inhibiting the systemic oxidation process, dilating the blood-vessels, lessening arterial tension, retarding circulation, and lowering temperature." The action of alcohol directly on the elements of the blood and molecular changes of the tissues, as just described, necessarily involves impairment of the functions of almost every important organ in the living body. Hence Blumenau, after patiently experimenting on five healthy young men, says: "On the whole, alcohol manifests a decidedly unfavorable influence on the course of normal gastric digestion. Even when ingested in relatively *small quantities*, the substance tends to impair all gastric functions." And Glazer, after a still more extended series of experiments concerning the action of alcohol on the urine and kidneys, concludes that it, in "even relatively *moderate quantities*, irritates the kidneys, so that the exudation of leucocytes and the formation of cylindrical casts may occur. It also produces an unusual amount of uric acid crystals and oxalates, due to the modified tissue changes produced by the alcohol." These last-named effects were confirmed by Chittenden's experiments on dogs.

All investigators agree that, in large doses, alcohol and the other anesthetics

or narcotics directly diminish cerebral sensibility and impair respiratory, vasomotor, and cardiac action; and if sufficiently increased, they permanently suspend all these functions. They all agree that in large doses alcohol suspends consciousness, lessens the depth and frequency of respiration, and dilates both heart and arteries by a paralyzing influence on the nerve cells and ganglia concerned. But some investigators and many clinicians still contend that in *small doses* it both stimulates and sustains the cerebral and cardiac functions. Their contention appears to rest entirely on the *feelings* or sensations of the person who takes it, and a very temporary increased frequency and fullness of the pulse following a small dose, as shown in some of the experiments of Dr. D. Cerna, and others.

In Dr. Cerna's paper, read before the Pan-American Medical Congress, 1893, details are given of numerous experiments with alcohol on both frogs and dogs. A careful examination of his tables shows that the alcohol, in whatever dose used, uniformly diminishes the efficiency of respiration, and in what he calls small amounts, increases the frequency of the cardiac contraction and the arterial pressure, but only very briefly. For instance, he says: "Thus in experiment 10, after the administration of 10 cubic centimeters of a 25 per cent. solution, a rise of 18 millimeters occurred one minute and forty seconds afterward, and in two and a half minutes more the pressure fell to 158 millimeters, the normal being 154. A second injection of 15 cubic centimeters was followed by an increase of 15 millimeters above the normal point in half a minute. The pressure stayed up for about two minutes. A third injection of 20 cubic centimeters caused a very *slight* rise, this lasting about eight minutes, and then there was a gradual fall below the normal. The same results are noticed in experiments 11 and 12." In no one of his experiments do I find either the heart-beat or pressure maintained above the normal more than

twenty minutes, and generally not beyond ten minutes, unless the dose was repeated; and the frequent repetition of the dose invariably soon led to sufficient accumulation to depress both below the normal and put the life of the animal in danger.

Could we have a more perfect illustration of the impracticability and danger of attempting to use alcohol as a cardiac stimulant in the treatment of disease than offered by the experiments of Dr. Cerna?

It a dose of from 10 to 20 cubic centimeters must be repeated every ten minutes, from one to two hours would be sufficient to render the accumulated amount toxic, and all the more so, because it depresses the respiratory movements from the beginning. It appears to me probable that the very transient increase in the frequency of the heart-beat shown in these experiments was caused by the primary irritant action of the alcohol on the muscular fibers, and it always subsided as soon as its paralyzing influence on nervous ganglia and centers had developed. His method of immersing the isolated heart of a frog in the alcohol solution suggests this. It is a well-known fact, that in all the most carefully devised experiments of Sydney Ringer, Prof. Martin, and H. C. Wood, they detected no instance of increased cardiac force from any sized dose capable of producing an appreciable effect in any direction, and that Dr. J. H. Orcutt, after many hundred applications of the sphygmograph (see "Microbes and Man") to the arteries of healthy individuals under the influence of alcohol, in all doses from 2 to 100 cubic centimeters, found "that alcoholic liquors of all kinds and in all sized doses, usually depress the action of the heart both in force and rate; there being no period of stimulation or excitement."

Finally, the claim that "small amounts of the drug stimulate the cerebral functions," is completely refuted by J. H. Kellogg, in the application of instruments of precision for measuring accurately the rate of transmitting impressions, the acute-

ness of tactile sensibility, the rapidity of mental action, and the degree of muscular force, in healthy individuals both when with and when without the influence of moderate doses of alcohol, as detailed in a paper republished in the *Medical Pioneer* for December 1894. His observations have been so far corroborated by others, that we may consider it demonstrated that alcohol absolutely impairs all nervous and cerebral functions in direct proportion to the quantity used, beginning with the highest and latest developments of cerebral structure, that regulating mental inhibition, and progressing through those of voluntary sensation and motion, to the involuntary, controlling respiration and circulation. And we can see clearly how a man with just enough alcohol in his blood and brains to impair his mental inhibition or sense of propriety, and enough less sensibility of the cerebral convolutions to make him less conscious of impressions of any kind, may suppose that he can think faster, work faster, lift more, and keep warmer, when in truth the exact reverse in all particulars is the fact. And we can see with equal clearness how the pages of our medical literature have been so long marred with the delusion that a small dose of an anesthetic or narcotic is a stimulant and tonic, and a larger dose of the same drug depressing and poisonous.

**INEQUALITY IN EYES.**—You are either left eyed or right eyed, says *Scientific American*, unless you are the one person out of every fifteen who has eyes of equal strength. You also belong to the small minority of one out of every ten persons if your left eye is stronger than your right. As a rule, just as people are right handed, they are right eyed. This is probably due to the generally greater use of the organs of the right side of the body, as, for example, a gunner, using his right arm and shoulder, uses his right eye, thereby strengthening it with exercise. Old sea captains, after long use of the telescope, find their right eye much stronger than the left. This law is confirmed by the experience of aurists. If a person who has ears of equal hearing power has cause to use one ear more than the other for a long period, the ear brought into requisition is found to be much strengthened, and the ear which is not used loses its hearing in a corresponding degree.

## IRON AND MANGANESE IN PERFECT COMBINATION.—GUDE'S PEPTO-MANGAN.

By M. C. WOODRUFF, M.D.,

Superintendent of Quarantine and Small-pox Hospital,  
Health Department of St. Louis, Mo., and late Assistant Professor of Genito-Urinary Surgery at Beaumont Hospital Medical College.

In submitting this article to the profession, it is not my intention to enter into a scientific discussion as to the value of "Pepto-mangan" as a red blood cell producer; that fact has been conclusively proven by men eminent in the profession, as for instance, by Loomis, Summa, von Ruck, and many others. I will confine myself to the practical application of this valuable combination of iron and manganese.

Before proceeding to detail my own experience with pepto-mangan, it may be well, for the benefit of those who are not familiar with the preparation, to explain briefly what it is. It is a well-known fact that chemists have long sought to combine manganese and iron, but as the combinations resulting were all of an inorganic nature, and as such were indigestible, they fell into disuse. Knowing the great advantage of such a combination experiments were continued by Dr. A. Gude, of Leipsic, Germany, whose efforts resulted in a perfect combination of iron and manganese, which is easy of assimilation, free from the corrosive effects of iron, and at the same time palatable.

As to the value of manganese in combination, I have no explanation to offer, nor do I care for any so long as the results are beneficial. If it is the oxygen carrier that is claimed for it, and we are enabled to introduce it into the system of our patient and secure its benefits, I say, avail yourself of it regardless of how it is combined. A few cases from my records will show why I esteem this remedy as a satisfactory and reliable agent:

Case I.—E. D., age, 32; occupation, fireman; patient consulted me regarding

a stricture of the urethra of several years' standing. A thin mucous discharge, continuous, was his only source of worry when he consulted me. As he was debilitated and run down, I put him on iron, which, although I thought he badly needed it, he was unable to assimilate before again giving it up; I tried it in all its forms, with no better results. It was at this time that my attention was first directed to pepto-mangan, and as I was in the experimental line about this time I put him on it, in tablespoonful doses after meals, in milk. I am glad to say that the results fully justified the experiment, for, after several weeks' treatment his discharge had entirely stopped, proving conclusively that iron was the agent necessary and that a digestible form had been found.

Case II.—L. L., age 18, white, female; patient menstruated at 12, continued regular for four years; after a severe spell of typhoid fever menses stopped, and for two years there was not even the slightest trace of them; a great part of this time active treatment had been persisted in by several physicians. I put her on pepto-mangan, in tablespoonful doses after meals, which she continued for four weeks, and then complained so much of pain in the region of the ovary that she had to discontinue the medicine for one week; then she resumed and continued for three weeks. When the pain caused her to discontinue for another week, she again resumed its use and continued for two weeks, making nine weeks in all that she had taken the medicine. There was a slight flow—not more than one ounce, but enough to show. At her next period she flowed a little more; at this time her parents moved out of the city and I lost sight of the case.

Case III.—M. H., age 18, white, male; a true case of septicæmia following smallpox. His abscesses were treated locally, and pepto-mangan "Gude" administered for a period of three months, at which time he had so far recovered as to warrant

his discharge; during all this time his bowels moved freely.

I have administered Gude's pepto-mangan in some two-hundred cases of smallpox, and have found its true worth in the secondary fever, which, being of a pyæmic character and followed by an unusual amount of depression, it has never failed to help relieve. Also in the convalescent stage of the disease I have found it to be a most efficient and palatable tonic.

Quarantine P. O., St. Louis, Mo.

#### *NOTE ON THE USE OF PERMANGANATE OF POTASSIUM IN THE TREATMENT OF DISEASES OF THE SKIN.\**

By L. DUNCAN BULKLEY, A.M., M.D.,

Physician to the New York Skin and Cancer Hospital;  
Consulting Physician to the New York Hospital, etc.

Remedies which are able to give efficient relief to pruritic conditions of the skin are so relatively few that each addition to the number is not without value, although the range of its applicability may not be so great as might be desired. In the following very brief communication I wish to call attention to a remedy which has served me excellently in a considerable number of cases of eczema, and also somewhat in other pruritic eruptions, during the past two years, and which I am prescribing with increasing confidence.

It is quite possible that its use is known to many, but as I learned it accidentally from a patient and have not seen it mentioned in text-books or journal articles, I feel that it cannot be very widely employed.

Briefly, it is simply a solution of permanganate of potassium in water, in a strength of from one to two per cent., or possibly stronger in certain cases. This is brushed or mopped over the surface and allowed to dry, which it does very

\* Read before the New York State Medical Society, January, 28, 1896. Reprinted from *N. Y. Medical Record*.



quickly. The well-known brilliantly pink or magenta-colored fluid turns very soon to a medium dark brown, staining the skin for some little time, and is finally thrown off by exfoliation of the tissues which it has oxidized.

Thus far I have used it mostly on subacute eczema, exhibiting patches of erythematous or papulo-squamous surface. I have not commonly employed it on moist or weeping surfaces, but recently a patient applied it to such on the thigh with most beneficial effects. It may sting or smart a little if the surface be at all abraded, but this is never complained of, and patients speak only of the immediate relief from the itching in the part which it affords.

I have frequently had a little calamine and zinc lotion sopped on after it was dry, mainly to guard against any excessive action of the permanganate. When the surface has tended to dry up too much, I have had a little mild or negative ointment applied after the permanganate was quite dry.

The application of the solution of permanganate needs to be repeated, perhaps twice daily, and some patients have used it oftener with advantage.

As it is an oxidizing agent, it often serves very well in reducing thickening of the skin, and I have seen patches which had resisted other treatment melt away under its use.

Although I have mentioned applying another lotion or an ointment over the dried application of the permanganate, there is no question whatever as to the effect of the remedy under consideration. In some cases it has been employed alone, and in other instances the patient has voluntarily omitted the additional local medication, finding that the permanganate alone sufficed to give relief; not infrequently where other remedies had been employed ineffectively the addition of the latter secured the desired result.

It is understood, of course, that in thus recommending a particular local applica-

tion I do not advise it to the exclusion of other and proper dietary and internal medical treatment, nor do I wish to exaggerate its special value to the depreciation of other valuable topical treatment. I only wish to call attention to a local measure which I believe is not well known, and which has helped me much in managing some rather rebellious cases.

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## Recent Medicaments.

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**TRIPHENIN**, another creation of the prolific von Mering, is a compound of parphenetidin and propionic acid. It is an antipyretic, etc., analogous to phenacetine; dose, 5 to 10 grains.

Two French investigators, not appreciating that new remedy nomenclature is already too complicated—and unnecessarily so—have investigated *urotropin*, the new uric acid solvent, and propose to call the product *formin*. If these gentlemen, Bardet and Laguer, would propose a simplification of new remedy names, they would be surer of attention and support.

**SACCHARINE** has had a host of synonyms, such as glucidin, dulcin, valzin, sucrol, etc. Now a few more have been offered, to-wit, zuckerin, saccharum artificiale and glycosine. It is a fruitful theme for word-coiners.

**CHINASOL** is a new antiseptic, a neutral compound of oxyquinolin; it is non-poisonous, and not disagreeable in odor—but it discolors the flesh, fabrics, etc. We doubt the necessity or “long-felt want” for a new antiseptic—unless absolutely perfect, with no disadvantages; otherwise, trikresol, lysol and phenol are good enough.

**PYRANTHIN**, or para-ethoxyphenyl-succinimid, also to be called phenosuccin, is a new antipyretic; it is a compound of succinic acid with phenacetin muriate. Therapeutic data not yet available.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - Editor.

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## Editorial.

### THE NEGLECTED STUDY OF THERAPEUTICS.

The editor of the esteemed *Medical Index*, of Kansas City, touches a sore spot in the following editorial note:

It is a strange fact that among the great number of papers read in the society meetings of this section the past year almost no place is given to scientific study of therapeutics. Do doctor's care nothing for therapeutics? Is there no field for discussion in the consideration of drug action? Have the perfected and elegant proprietary medicines "killed" the science, and the desire for discussion, of therapeutics? It would seem so.

It is true that therapeutics is not generally regarded separately as an important branch of medical science; it is not a specialty in itself, but a part of all specialties. Classical lectures on drugs are delivered at special college meetings, and occasionally in society meetings, by Prof. H. C. WOOD; and HARE, WILCOX, STEWART, CERNA and others frequently contribute scientific treatises on drugs, their physiological effects and clinical applications. But the great majority of contributors to medical literature are specialists, and with them *treatment* is an incidental consideration in a report, briefly summarized or only casually indicated.

A change is necessary, and we believe

it is coming in the steadily advancing standard and requirements of medical education. The two years' course, with perhaps six months of limited instruction, afforded little time for thorough study of the general principles of medicine, let alone close application to therapeutics; good text-books on therapeutics were available, and the exceptional student made the best of this opportunity, particularly if a good teacher helped as best he could—without a physiological laboratory, clinic, or other means for practical experimental work. But the three years' course, now general, has worked improvement; and the four years' course will do more. Laboratories are established, and are increasing in number as they become necessary to maintain an attractive college outfit; many earnest teachers are working in all sections of the country, and there are enough students anxious to profit by the enlarged opportunities.

After all, the treatment of disease is equally important with the study of its causes, indications and effects; and treatment means the application of drugs, or therapeutics. There need be no fear that the scientific study of therapeutics will be neglected. We are coming to it in increasing numbers and with stimulated zeal.

K.

### PHARMACY AND PHARMACOLOGY.

WILLIAM MURRELL, lecturer on Pharmacology and Therapeutics at the Westminster Hospital, contributes an earnest argument for the increased importance of pharmacology as a part of the study of medicine, in the London *Lancet* (Feb. 22, 1896, p. 511), which, appearing to be an equally important and pertinent subject here, we quote in full:

"As so many fallacious arguments have been adduced in favour of the abolition of pharmacology as an examination subject I should esteem it a favour if you would permit me to say a few words in reply. In the first place, it is stated that the term "pharmacology" has no definite

meaning and that no two authorities are agreed as to the interpretation of the word. As a matter of fact that is no difficulty. Pharmacology is the science which deals with the action of drugs and other agents on the healthy organism. It means the same thing as the physiological action of drugs, bearing in mind, however, the fact that it includes all agents capable of producing modifications in the healthy organism, such, for example, as heat, light, and electricity. The observations are made, not with the direct object of curing diseases, but with the view of ascertaining the action of the agent employed. The experiments may be made on man, on one of the lower animals, or on a portion of an animal, such as the isolated frog's heart. The attempt to confound pharmacology with pharmacognosy is puerile. By pharmacognosy we mean the recognition of drugs by their physical and chemical characters with the detection of adulterations. It means practically the same thing as "spotting specimens," an expression in common use amongst students. Secondly, it is asserted that there are no books of pharmacology, and this again is incorrect. Dr. LAUDER BRUNTON's classical work on "Pharmacology and Therapeutics" has been before the profession for over ten years, "SCHMIEDEBERG's Pharmacology" has a world-wide reputation, and a translation of the "Pharmacology" by BINZ, of Bonn, will shortly be issued by the New Sydenham Society. Thirdly, it is said that no examining board has succeeded in introducing pharmacology as an examination subject. I do not profess to be acquainted with the regulations of all the examining boards, but I know from personal experience that an examination in pharmacology, both by written papers and *viva-voce*, has for many years been held in the University of Edinburgh, and I understand that similar examinations are held in the Victoria University. There is no difficulty in setting papers on pharmacology and there is no difficulty in teaching the subject. At the

Westminster Hospital for the last four years I have lectured on pharmacology pure and simple, and have experienced no difficulty in finding ample materials for a full summer course. Fourthly, it is objected that pharmacology should not be taught because it cannot be taught practically on account of the restrictions of the Vivisection Act. This argument, if true, would apply equally to physiology, but, as a matter of fact, there is nothing to prevent most of the elementary facts of pharmacology from being demonstrated before a class. Students, for example, are always willing enough to inhale nitrite of amyl, so that the action of the drug on the pulse may be shown by the sphygmograph, and there is no danger in the experiment. There is nothing to prevent me from killing a frog by pithing it, and, when the animal is dead, from demonstrating the influence of muscarine in slowing and finally arresting the heart, and then the antagonistic effect produced by atropine and other members of that group. Even the opponents of pharmacology would hardly maintain that experiments on dead frogs are prohibited by the Act. Then, again, the influence of strychnine, brucine, thebaine, and other tetanisers can be perfectly well shown on pithed frogs, whilst Roy's apparatus in its various forms and modifications is admirably adapted for demonstrating the action of digitalis and its congeners on the isolated frog's heart. The effects of chloroform, ether, and other anæsthetics can be shown in the same way. Experiments illustrating the effects of various drugs on ciliary motion are equally available; in fact, pharmacology is just as capable of being taught practically as is physiology. Finally, it is agreed that every physician is capable of conducting examinations in pharmacology and consequently that the subject should form a portion of the examination in medicine. Theoretically, of course, every physician is an accomplished physiologist and anatomist and is equally well up in chemistry, toxicology,

forensic medicine, and hygiene, but we know practically that the intimate knowledge of these subjects necessary for examination purposes is confined to a few who make a speciality of them. I know many excellent examiners in medicine who would cut a sorry figure if they were to attempt a *viva-voce* examination in pharmacology, and who would have a very uncomfortable quarter of an hour if they had to tackle a student even moderately well up in his work.

"It may be said, What is the good of pharmacology, and why should a student be required to know anything about the action of drugs? The answer is because pharmacology is the basis of therapeutics and of a rational treatment, and that a medical man who does not know the principles on which he prescribes is an empiric and little better than a quack. The gentlemen who have profound contempt for the physiological action of drugs do not show up very brilliantly when called in to a case of poisoning. They go hunting round for some little text-book to find out the antidotes, but as far as their own personal knowledge goes they are of no use whatever. In a few years' time if this kind of thing goes on we shall have a race of practitioners growing up who can not write a rational prescription, and when our patients leave us and resort to the advertising chemist and the patent medicine vendor we shall know whom to thank for the degradation of our profession."

We are of the opinion that in some of our schools of medicine this subject receives due attention; and with so excellent a text-book as *Wood's Therapeutics* in almost general use, no student of medicine in this country lacks for available means to study pharmacology thoroughly. But not all students are animated with a desire to *learn*; too many take a superficial view of the *study* of medicine, having in view only the earliest possible attainment of a diploma enabling them to *practice*. The standard of medical education is advancing, however, and with it the standard of

qualification. Dr. MURRELL's protest and plea should receive earnest consideration; his views are shared by all our eminent teachers, and they will prevail. K.

#### EDITORIAL NOTES.

WE do not wish to indicate to our readers, by publishing Dr. DAVIS's article on "Large and Small Doses of Drugs," that we are in accord with his views—not even in considering alcohol alone. The physiological effect of small doses, often repeated, has been the constant subject of discussions in these columns, and editor and contributors—as well as readers, we trust,—have sanctioned this method more or less. But Dr. DAVIS is entitled to a respectful consideration of his views; they express convictions from ripe experience. And where else will they receive greater attention than in these columns, where views opposite to his have so frequently found expression. It may lead to a discussion, and our columns are open for it.

CLINICAL REPORTS, as mere records of observations and facts, are prosaic and give little opportunity for literary style and finish; but they are valuable, and make the foundation of medical progress. We solicit clinical reports for preferred publication in the AMERICAN THERAPIST. It is our desire to record therapeutic facts, rather than entertain with theoretical dissertations; to make each issue of the journal an exchange of practical clinical observations, and thus store up in the volumes that are making the annals of progress in medicine. Our readers, and we number scores of desirable contributors among them, are earnestly invited to help by sending us their manuscripts.

ENTEROL is recommended by Fess as an intestinal antiseptic; it is a compound of cresols, possesses their caustic effect, and must be administered with caution in doses of  $\frac{1}{4}$  to 1 drachm of a 2 p. c. solution. Cresol compounds are multiplying.

## Current Literature.

**STRYCHNINE IN VIPER BITES.**—R. P. Banerjee (*Indian Medical Gazette*, July, 1895, *Medicine*, March, 1896) describes two cases treated with strychnine. The first patient was incoherent, pupils dilated and insensible to light. There was a fixed staring expression, severe frontal headache, and he staggered when standing. Two punctures were found on left foot, one over the instep and the other at the scapho-metatarsal joint, about three-fourths of an inch in depth; they were discharging a fluid non-coagulable blood. The foot was painful and edematous. This case took altogether four-fifteenths of a grain of strychnine by hypodermic injections. The patient was a total abstainer, being a Vaishnav by caste, and made a good recovery. It was safe to trust to strychnine until the irides were sensitive and contracted, and then ammonia and brandy were given.

In the second case the pulse was 100; temperature 99.6°; tongue cold and clammy; eyes bright, conjunctivæ injected, pupils dilated; severe pain in the head—a touch on the frontal protuberance startled the patient, who was senseless; tenderness at the pit of the stomach and renal regions; breathing stertorous, expiration with rattle, tongue drawn within the mouth; cyanotic patches on the chest and face and along the right leg; right foot swollen—two distinct punctures were found a quarter of an inch deep and three-fourths of an inch apart, bleeding thin non-coagulable blood, edges very much ecchymosed. The punctures were situated at the astragalo-scaphoid articulation on the dorsum of the foot. This man took in all six-fifteenths of a grain of strychnine in divided doses hypodermatically. He made a good recovery.

**THE TREATMENT OF COUGH.**—Dr. Robert H. Babcock, of Chicago, contributes "Some Considerations with Regard to Cough" to *Medicine*, March, 1896, which

will repay perusal in its entirety, but from which we quote only the data of treatment—having this keynote: "Codeine is by far the best remedy at our command." The author says:

Codeine is preferable to morphine or crude opium, because it rarely disturbs appetite or digestion, and is generally free from their unpleasant after-effects. The phosphate of codeine is preferable to the sulphate, because containing a larger percentage of the base, besides being readily soluble and suitable for hypodermic administration. In cases of *la grippe* with frequent paroxysmal cough I have employed Wyeth's hypodermic tablets of codeine phosphate, and been greatly pleased with this mode of administration. Quite recently in several cases in which dry spasmodic and prolonged cough called for a sedative and antispasmodic remedy, I have obtained quite brilliant results from bromoform combined with gelsemium, as follows: Bromoform, 7.5 grm.; tincture gelsemium, 8 grm.; syrup of lactucarium, to make 65 grm.; powdered gum arabic, a sufficient quantity. A teaspoonful three or four times a day was the dose prescribed. One female patient with pulmonary tuberculosis, who was unable to sleep because of harassing cough without expectoration, was instructed to take a teaspoonful of this prescription, and repeat in half an hour if necessary. The remedy did not prove very efficient, and to my horror the patient reported the next day that she had taken almost the entire quantity during the night, although apparently without injurious consequences. In another case, in which severe and almost incessant coughing due to acute bronchitis threatened to break down the heart, already greatly enfeebled from mitral and aortic disease, the following prescription accomplished the very happiest results:

R Bromoform .....	7.5 grm.
Codeine phosphate.....	1.0 grm.
Compound syrup of squill...	10.0 grm.
Syrup of lactucarium, to make	130.0 grm.
Powdered gum arabic.....	q. s.

M. et fiat emuls. Sig.: Two teaspoonfuls every two hours.

In the very early stage of an acute bronchitis with substernal soreness, squill is inadmissible, and the hive syrup of this formula had better be replaced by syrup of ipecac or a minute amount of tartar emetic.

A CASE OF TENIA MEDIOCANELLATA IN A CHILD TWO YEARS OLD.—Dr. Frank P. Norbury, of St. Louis, reports the following in *Archives of Pediatrics*, chiefly interesting because it may suggest to the reader that it will be wise to warn mothers against the practice of giving children raw meat to eat. Dr. Norbury says:

It is unusual to find tape-worm in a very young child. The following case is of interest, first, because of the age of the patient; second, because of the probable source of infection:

L. S., when eighteen months old was noticed to experience a feeling of general discomfort with an occasional attack of presumed colic. There was insomnia at times, and almost every night restlessness, with outbreaks of crying. The family physician was not consulted until a spasm occurred. He thought indigestion was the trouble, inasmuch as the child had never nursed at the breast, but was bottle-fed. Treatment was directed toward ameliorating this supposed trouble, but with no apparent results. The mother insisted that worms were present, but treatment did not relieve this supposed condition.

The *spasms* still continued. I saw the child when she was about two years old, and upon examination and hearing the history, concluded that the irritation was intestinal. An observation extending over several days, during which time the stools were rigidly examined, revealed a portion of tape-worm and made clear the source of trouble.

The first attempt to secure the worm was unsuccessful, male-fern being used; but in due time another and successful venture was made. Preparations as to diet were carefully followed, and at about nine o'clock one morning Tanret's pelleti-

erine was administered, one-third of the adult dose being used. In about three hours a dose of castor-oil was given, and at one o'clock P. M. the complete worm was expelled.

An examination of its head showed it to be the beef tape-worm (*tenia mediocanelata*). I immediately inquired if this child had been fed upon beef. At first the mother could not remember, but finally recalled the fact that when the child was about one year old it was having trouble with its diet, and an aunt who was visiting them at that time said that she had heard that scraped beef had been used successfully in such cases and recommended its trial. Accordingly scraped raw beef was administered for at least three days. As no further history of the use of beef could be obtained, this must be accepted as the source of infection. It teaches us to be careful in recommending raw meats, especially to an infant.

STRYCHNINE IN PREGNANCY.—Olenyn (*Protocol of the Medical Society of Tombow* for 1894) has successfully used strychnine in sixteen cases for the correction of weak labor-pains in doses of  $\frac{1}{16}$ , to  $\frac{1}{8}$ , grain twice daily, at intervals, during the last six or eight weeks of pregnancy. Four of these cases were anemic primiparæ from 19 to 32 years of age with weak muscles; three were multiparæ under 30 years, with habitual weak labor-pains; four suffered from chronic metritis and had been pregnant at intervals of from three to twelve years; one patient had a small uterine fibroid; two had flabby uterus and relaxed abdominal walls; one had tertiary syphilis and general debility, and another diseased appendages with hysteria. In two primiparæ the forceps had to be used, and in one the child was dead; but in all the other cases delivery was rapid and regular and the children lived. The third stage lasted from ten to twenty minutes, and *post-partum* contraction of the uterus was excellent.—*Univ. Med. Mag.*

### ANESTHESIA IN DISEASES OF THE PHARYNX.

—In the discussion following a paper on these diseases (N. Y. Academy of Medicine, Feb. 20, 1896) Dr. Gleitsmann stated, that he had found bromide of ethyl a valuable anesthetic for short operations; that antipyrin had also proven valuable as a local injection to prevent or alleviate pain during operation; and that parachlorphenol in glycerin had been found useful to subdue pain in some cases, while it failed in others.—Parachlorphenol is evidently not destined to become a useful and popular member of materia medica; it has been periodically revived during the past four years, but is always again abandoned as unreliable.

**THE TREATMENT OF THE INDIGESTION OF STARCHY FOODS.**—Dr. Reynold W. Wilcox read a paper on this subject, before the Section of General Medicine, New York Academy of Medicine, Feb. 18, 1896; we quote the following summary of his paper from the *Medical Record*:

He said that to treat this condition properly one must carefully consider its etiology. Such indigestion was often due to the habit of partaking freely of fluids along with starchy food, yet it was sometimes difficult to persuade persons to desist from this practice on account of the thirst and discomfort which they experienced. Dr. L. D. Bulkley, of New York, had recently offered a most excellent practical solution of this difficulty. It was to direct the patient to partake freely of hot water about half an hour before meals. This he had found would effectually quench the thirst. Too great gastric acidity was also unfavorable to the proper conversion of starch. Such acidity could be combated by the use of sodium bicarbonate, and it was now known that even the prolonged administration of this salt in large doses exerted no harmful influence. He had obtained good results from the administration of normal phosphate of sodium with bicarbonate of sodium on rising the morning. In patients afflicted with

indigestion of starchy foods, constipation often alternated with diarrhea. This diarrhea should not be treated with opium or the usual intestinal astringents, but by the use of intestinal antiseptics.\* Among the most useful of this class was bismuth naphthalate, in doses of ten or fifteen grains, in powder or capsules, after meals. Various methods of coating† pancreatin pills had been suggested, so that they might pass safely through the stomach and begin their action in the intestine. One of the best coatings, that suggested by Dr. W. H. Flint, consisted of an alcoholic solution of shellac containing a little tolu to make the coating sufficiently elastic. The solid malt extracts were useful adjuvants to treatment, but most of the liquid extracts contained such a large proportion of alcohol as to seriously interfere with their power to convert starch. He had used with considerable satisfaction a Japanese preparation of diastase. In one case, however, after its administration the patient became faint and exhibited symptoms somewhat like those of belladonna poisoning. As the use of the remedy in this instance was not repeated, he could not, of course, say how much of this sudden disturbance was directly attributable to it.

\* The paper on this subject, by Dr. A. L. Benedict, which we publish in this issue, presents the available antiseptics in fairly balanced contrast, and will prove useful for study and reference.—ED.

† All coatings of this kind seem to have shortcomings which make them imperfect or unreliable. The best method that has come under our notice is that designed by Waldstein and Breitenbach, described in "Treat's Medical Annual," 1895, p. 552, as follows: The pill mass is made regularly with appropriate incipient, rolled out, and the pills allowed to dry briefly; meanwhile a sufficient quantity of salol—or preferably salacetyl, the improved substitute for salol—is melted in an evaporating dish, the pills are then dropped into the liquefied coating and rolled actively until the salol is cooled. The coating is smooth, impenetrable and perfect, and will last until dissolved in the intestines." We have seen pills of a variety of ingredients—among them capsules of creosote—thus coated; they looked fine, kept well, and withstood or answered properly the tests to establish their desired solubility in alkaline medium only.—ED.

**PHENOCOLL IN WHOOPING-COUGH.**—Dr. A. Martinez Vargas, professor of pædiatrics in Barcelona (*Therap. Woch.*, Jan. 5, 1896 —*N. Y. Medical Journal*, Mch. 5, 1896), employed the phenocoll treatment of whooping-cough in forty-two cases during the period from February, 1894, to June, 1895, and he declares that it is far superior to any other remedy for that disease that he has ever tried. In every one of his forty-two cases its effect was shown within the first twelve hours, although in many of them the frequency of the paroxysms was not reduced until the next day. Even in children of a very tender age he has not observed any untoward action of the drug. He gives the hydrochloride in daily amounts of from one to thirty grains, according to the patient's age; he has always used it dissolved in water to which sugar or gum arabic has been added. He remarks that it is absorbed very rapidly and eliminated promptly. He thinks that the efficiency of phenocoll hydrochloride in whooping-cough is not due to its antibacterial action, but to its acting as a sedative.

## Book Notices.

**SYPHILIS IN THE MIDDLE AGES AND IN MODERN TIMES.** By Dr. F. BURET, Paris, France. Translated from the French, with notes, by A. H. OHMANN-DUMESNIL, M.D., Professor of Dermatology and Syphilology in the Marion Sims College of Medicine; Consulting Dermatologist to the St. Louis City Hospital, to the St. Louis Female Hospital; Physician for Cutaneous Diseases to the Alexian Brothers' Hospital; Dermatologist to Pius Hospital, to the Rebekah Hospital, to the St. Louis Polyclinic and Emergency Hospital, etc., etc. Being Volumes II and III of "Syphilis To-Day and Among the Ancients," complete in three volumes. 12mo, 300 pages. Extra cloth, \$1.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This concluding volume of Buret's work on syphilis presents an excellent appearance; it is rendered into faultless English

by the translator, who may be trusted to have sacrificed none of the elegant idioms of the polished language of the original. The history of such a subject cannot be very savory, but the work seems complete—showing laborious research and great erudition—and will serve well to widen the knowledge of student and specialist.

Following the author's preface and that of the translator, the book is divided into two volumes, the first into six and the second into five chapters, viz., 1. Scientific Documents; 2. Historical and Literary Documents; 3. Syphilis and the Epidemics; 4. The Epidemic of Naples; 5. Origin of the Venereal Disease and the Different Names it Received in the Fifteenth Century; and (Vol. III): 1. After the Epidemic of Naples; Syphilis Recognized and Classified; 2. Venereal Pathology in the Seventeenth Century; 3. In the Eighteenth Century; 4. Syphilis in the Nineteenth Century; and 5. Treatment and Prophylaxis of Syphilis.

This table of contents will indicate the scope of the work, and we may add that every chapter is treated in great detail. It makes a book worth having, for reference and for casual study.

**A MANUAL OF ORGANIC MATERIA MEDICA;** being a Guide to Materia Medica of the Vegetable and Animal Kingdoms, for the Use of Students, Druggists, Pharmacists, and Physicians. By JOHN M. MAISCH, Ph.M., Phar. D., late Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Sixth Edition. Revised by HENRY C. C. MAISCH, Ph.G., Ph.D. With 285 illustrations. 12mo, 509 pages. Cloth, \$3.00. Philadelphia: Lea Brothers & Co., Publishers, 706—710 Sansom St.

The last edition of this Manual was published in 1892; owing to some changed standards, nomenclature, etc., in the United States Pharmacopeia, which was published in the same year, a revised edition was made necessary, but had to be postponed because of the death of Prof. John M. Maisch. The revision has now



been made by the son, who creditably steps into his distinguished father's place.

Maisch's *Manual of Organic Materia Medica* is to pharmacy what Wood's *Therapeutics* is to pharmacology or therapeutics. Pharmacy covers the characteristics of identity of drugs, pharmacology defines their effects physiologically—therapeutically. These two books cover the field thoroughly; they are our highest standards, and have secured international prominence and authority. Maisch's *Manual* is our most reliable and complete guide for "spotting specimens," as Prof. Murrell puts it (see p. 262 this issue).

The present edition of the "*Manual*" is published in slightly changed, but convenient and handsome form; the text-matter has been increased; specific names have been changed to new official designations, and new official drugs appear in large type while those dropped from the U. S. P. are now printed in small type; new illustrations of some official barks are introduced, and in every detail the work is brought up to date.

This "*Manual*" is used as auxiliary text-book in every college of pharmacy in the United States, and is recommended in medical colleges. Every progressive medical man should be familiar with the work, and should have it available for reference.

### PAMPHLETS RECEIVED.

A Case of Dermoid Tumor of Both Ovaries Complicated by a Deposit of Bone Upon Each Side of the True Pelvis, Having no Connection with the Tumors; by C. P. NOBLE, M.D., and J. P. TUNIS, M.D. Reprint, Dec., 1895.

Technique of Emptying the Uterus in Inevitable Abortion; by CHARLES P. NOBLE, M.D. Reprint, 1895.

Movable Kidney; same author. Reprint, 1896.

A Consideration of Certain Doubtful Points in the Management of Abortion; same author. Reprint, 1895.

Some of the Newer Problems in Abdominal and Pelvic Surgery in Women; same author. Reprint, 1896.

A New Operation for Congenital Ptosis, with report of two cases; by T. C. EVANS, M.D. Reprint, 1896.

The Necessity of Complete Extirpation of Tumors and the Importance of Rapid Cicatrization of the Wound; by F. H. WIGGIN, M.D. Reprint, 1895.

## Miscellany.

SINGING MICE.—A correspondent of the *N. Y. Sun*, signing himself "M. D.", enlightens the readers of that journal as follows: "I find in *The Sun* two reports about singing mice. If the gentleman who caught the singer in a trap had taken the little body to a pathological institute for an autopsy he would have found the cause of the singing. A post-mortem examination would have shown that the vocal cords of the little animal were diseased. By some croupous or diphtheric process, with its consequent cicatrices and shrinking of the tissue, the breathing of the mouse is impaired. The quick inspirations and expirations of the animal produce the sibilant noises which, resounding in the stillness of the night, sound to the listener as twittering or whistling. I am sorry to destroy the sentimental or poetical ideas which might be connected with the singing of a mouse (might it not be a hemouse serenading its inamorata?), but very likely the singing is rather involuntary."

SHOULD DOCTORS WEAR BEARDS?—Dr. F. A. Colby, of Berlin, N. H., in a letter to the *Boston Medical and Surgical Journal*, discusses the danger of the practice. He cites a number of cases in which doctors by wearing beards, have conveyed the infection of diphtheria, etc. The responsibility of the surgeon in this matter is particularly insisted upon. Some time ago the *Medical Record* discussed this subject, advising not necessarily a total abolition of the beard, but restricting it to modest and sanitary limits. At that time, however, we received such severe criticisms from correspondents who had for years worn long and breezy whiskers, that it seemed wise that the subject be dropped. We shall follow with interest the progress of Dr. Colby's propaganda.—*Medical Record*.

INSECTS USED IN THERAPEUTICS.—At the present day, says the *National Druggist*, the number of kinds of insects used in medicine is very small, the cochineal, cantharides, *blatta orientalis* about comprising the list. But in former days, and down even to the end of the eighteenth century, a large number of species was used. In this, as in every other department of the *armamentarium medicum*, in popular medicine at least, the nastier the substance, the more potent the remedy. Thus, wood-lice were used to cure indigestion, or, to put it in the lingo of that day, were potent to "dissolve the mucilaginous tartar of the body," "open obstructions of the viscera," etc. When it came to treat epilepsy, the *grand mal*, something more powerful was necessary, so we are not surprised to find the old physicians recommending *bed-bugs* as an almost infallible remedy. Aristophanes, Aristotle, Pliny and Dioscorides, all maintain the efficacy of these disgusting creatures in quartan fever. Pliny says that seven bed-bugs swallowed at the beginning of an attack will certainly work a cure.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. IV.

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## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATE.*

By SAMUEL S. WALLIAN, A.M., M.D.

(SEVENTH PAPER.)

Contrasting the Old World and the New, with respect to their geographical positions, land areas and climatic zones, they present peculiarities which make them quite opposite in character. The Old World is composed of four continents grouped in a compact mass; the New has but two continents, and these extend in two directions only, and are barely connected by a narrow neck of uninviting land which serves as a natural bar to commercial intercourse or community of interests. In general character the Old World is therefore continental, while the New is comparatively insular. The Old World has its greatest extent along the parallels, the New stretches along the meridians. The former lies mostly in the northern temperate zone. Asia is tropical in only a few peninsulas; Europe lies wholly within the temperate zone, Africa alone embracing a tropical belt. American, on the other hand, embraces all zones, from the frozen ocean on the north to the Antarctic seas at the south. Thus the Old World is essentially massive, compact, temperate and continental, as to its distinctive features, and the New World is comparatively long and narrow, insular or oceanic, and cosmopolitan in its zonal comprehensiveness, lying on both sides

of the equator and stretching from the North Pole to nearly sixty degrees south latitude. One may traverse the Old World throughout its longest diameter, from east to west, without experiencing any decided change of climate except where the same is locally influenced by mountain ranges, elevated plateaus, or varying distance from the ocean. To compass the extremes of the New will carry one through every possible gradation of climate, from the regions of eternal ice and snow to the fiercest glare of the tropic sun, and from the burning equator again to the frozen zone which stretches in sombre silence beneath the Southern Cross.

The western hemisphere has been styled the humid side of the world, and the eastern hemisphere the arid half; but this contrast is scarcely a plausible one, as will be seen by a comparison of the precipitation as it annually occurs in the two. True, the rainless regions of the Old World are immense in comparison with those of the New. These regions consist of an extensive system of deserts which traverse the Old World throughout its greatest length. Outside this great expanse of aridness the rainfall is even greater than in the western hemisphere. The animal and vegetable kingdoms of the two regions prominently reflect the differences in their respective climates. With the exception of a few tropical localities, as the Indies and central Africa, the Old World does not produce anything like a counterpart of the gigantic and extensive forests which abound in the New. In the arid and semi-arid regions the law of selection has also transformed many species of vegetation until they no longer resemble their family type. What would under other conditions

develope into succulent leaves with broad surfaces fitted for absorption and evaporation, are condensed and concentrated into compact cylinders, fibrous reeds, or horny spikes. The dessicated saps turn to gums and aromatic resins, the leaves becoming convolute, membranous and leathery. Examples may be cited in the Aloes, *Nesembryanthems*, *Mimosas* and *Stapelias* of Southern Africa, and the *Banksias* and lanceolate-leaved *Eucalypti* of Australia. The exceptions to this law are found in the famed Banian tree, which often spreads its root-supported branches over an area 300 feet in diameter, and the giant Baobab which sometimes reaches a size of 75 feet or more in circumference. These are rare examples; but on the other hand, what the arid regions lack in quantity, as to vegetation, is largely made up in quality, concentration and intensity. Here abound the pungent spices, capsicum, cloves, cinnamon, ginger, nutmeg, pimenta,—all the aromatics, gums, resins and camphors, as has been already casually noted.

In the tropic and sub-tropic regions of the New World the vegetable kingdom runs riot. It is represented by far more numerous genera and species. Her forests are massive, and cover wide areas. Often they are so interwoven with giant climbers as to be practically impenetrable to man.

When we approach the animal kingdom the comparison is reversed. The Old World presents types of animal life wholly unknown to the New, while representatives of species common to both hemispheres appear in greater variety in the Old World, and many of them attain to so much greater size, and exhibit such modifications as to strength, fierceness and individual habits as to be hardly recognized as belonging to the same family. In the New World insects and reptiles excel in variety, size and rapacity. In her dank and dense forests, into which even the torrid sun can scarcely penetrate, they flourish as nowhere else on the face of the

globe. The animal life of the Old World is of a higher type. It is the domain of the Mammalia. The dog, ox and horse come to us from the Old World. The Orang-utan of the Indies, and the nearest relatives of the human race, the Chimpanse and Gorilla of West Africa, have no counterparts in America. The elephant, Hippotamus, Giraffe, Lion, Rhinoceros and Buffalo are other examples.

Coming to the human race the contrast is even more distinctly drawn. All the superior races have been evolved in the Old World, which has produced at least four distinct varieties, against the single representative of the species originally found in America. Thence sprang the Xanthocroi or Caucasians, the Australoids, Negroids and Mongoloids, with even a doubt as to whether the remaining subdivision did not also emanate from the same prolific soil.

At the head of all the races stands the Caucasian, the race of progress and ideas, of high civilization and moral stature, of culture and enterprise. This is the race that has carved its own history on the projects and accomplishments of the world. It has been not inaptly named the historical race, since its history has been the history of all that has been worth recording in the history of human progress and human civilization. Then follow the Mongoloid, lower down in the scale but still far above the lower varieties, and sometimes called the semi-historical race. Even some of the tropical tribes of Central Africa are higher in the scale of civilization than the wandering and warlike representatives of the New World.

It follows that it is not in hot and humid climates that either animal or human species attain their greatest perfection, and that of the two, excessive aridity is more conducive to human development and perfection than excessive humidity. Too much water soddens gray matter. Humidity in excess is a hindrance to human development. The tribes of tropical Africa are quite a stride in advance of the

natives of tropical America. They have some of the instincts of civilization, from governments and foster agriculture.

Comparing the population of the two hemispheres as to density, the contrast still holds. Ignoring fractions, the population per square mile of the several subdivisions of the two worlds is as follows:

Europe, 107; Asia, 58; Africa, 11; North America, 14; South America, 5. This is an average of nearly 59 in the Old World as against  $9\frac{1}{2}$  in the New.

Summing up the contrasts, the Old World surpasses the New by the number of its continental masses and the immenseness of its area, by the great superiority of its vegetable and animal species, by the continental character of its climates, by the destiny of its population, and by the variety as well as the advanced intelligence of its races of men.

The New World surpasses the Old in its climatic range, in fertility of soil, in the luxuriance of its vegetable kingdom, the variety of its insects and reptiles, the extent of its virgin forests, and in the volume of its flowing rivers.

In studying the effects of latitude, temperature—climate, or the vegetable kingdoms the first prominent fact encountered is, that all forms of animal and plant life lapse and deteriorate with a steady ratio as we recede from the equator. Both these kingdoms reach their highest degree of perfection under the genial rays of the tropic sun. Developmental processes are retarded by every fall of the thermometer. The vital forces in the plant or animal are diverted when they are obliged to combat or resist cold. Heat is stimulating; frost inhibitory. But this law does not hold when referred to the human species. The purest and noblest specimens of the genus *homo* have developed within the mid-temperate zone. As we recede from this centre the types progressively decline in both directions, until, under the equator, and in the polar regions, we find the least developed and most degenerate specimens.

Notwithstanding the general assertion, to the biologist and student of general science, who seeks to go deeper into the subject than its mere superficies, the essential inquiry remains: What does a given climate produce in the department of animal life; what examples of the crustacea, amphibia, mamalia; what trees, grasses, tubers, flowers and fruits? And following this series, looms up the *experimentum crucis*,—to what rank do its specimens of the genus *homo* attain?

However, we may generalize, these questions are yet very inadequately answered, for the reason that we have not yet observed with sufficient accuracy and comprehensiveness. We have studied all the available zones chiefly with a sordid view of their material and commercial possibilities, and are only just beginning to realize that climate is itself capital, both for the state and the citizen, capital that will one day be held at a definite premium in markets in which it now commands but scant recognition. Evidently the ultra commercial age is about at its zenith. The instincts of the race are beginning to reach toward a higher level. Thus far the highest types evolved have been either commercial or intellectual. Neither of these extremes is ideal; both are material; and both may be equally sordid and selfish. The permanent progress that is already clearly perceptible and steadily increasing in momentum, is keeping in touch with the social and spiritual side of human nature.

Already a goodly number have begun to realize that wealth is by no means synonymous with culture, progress or happiness, and that its possession as often as otherwise stifles and retards, rather than fosters real growth.

"Nature takes out of the man what she puts into his chest," is a law written in the nature of man; and however much it is ignored, prescient observers realize that the over-materialistic age has sensibly begun to wane. At least it has reached a limit whence it falls under the universal

law of retrogression. The Golden Calf is losing caste. Money, as an incentive to human aspiration and ambition, has nearly rounded its epoch!

"Let me write the songs of a nation and I care not who makes its laws," if submitted to the alembic of the biologist would read:

"Let me dictate the food supply of a people, and I will not only shape its statutes, but will easily prognosticate its industrial vigor and commercial importance, and measure its intellectual and moral stature."

Climate practically controls the character and composition of the food of a race, and food, if it does not wholly determine, essentially and radically modifies physical and intellectual development as well as moral trend.

The widespread interchanges of modern commercial intercourse necessarily modify this rule, but not vitally, since they do not greatly affect the dominant masses, the real yeomanry of any nation. The rank and file of the laboring, producing and procreating class, those who are begetting an overwhelming majority of posterity, for the most part cling to their home-raised and domestic prepared food products, limiting their patronage of imported and transported viands to a few dainties, relishes and rare indulgencies for holidays and the like. Away from the great lines of travel and outside the larger cities there is little—that is, comparatively little—indulgence in the far-fetched products of foreign growth.

It is said that, "no man can farm against climate." It follows that the latter must figure as one of the fundamental assets of any state, country or locality. In every country the quality as well as the quantity of its products depend more upon its climate than its soil. This assertion looks extravagant, but it is true. Unquestionably the principal ally of the producer, climate at the same time determines the quality of the food he eats, the composition of the atmosphere he breathes,

and the mildness, intensity or indifference of the elements with which he must do battle.

Productiveness, fertility, depends much more upon the two factors, warmth and moisture, than upon the composition of the soil. The very best soils fail to produce if the climate be too cold or too dry; while the poorest on the globe can be made to produce bountifully when properly warmed and watered.

But for the constant, intimate and determining influence of every item of his physical environment, on the resultant man, these reflections might be put down as irrelevant or as an uncalled-for digression. As it is, they are decidedly pertinent.

As a factor of climate, the effects of *altitude* on the development, character and destiny of the race may be rather summarily disposed of, for the reason that statistics show that nearly seventy-five per cent of the entire population of the earth is found living in altitudes less than 1000 feet above sea-level, and fully ninety-five per cent. below 5000 feet. The densest population congregates near the seaboard, all the great commercial centres being located immediately upon navigable waters, which are, per force, at or near sea-level. This density of population diminishes with comparative regularity up to an elevation of about 2000 feet above sea-level. It is gradually encroaching upon the higher altitudes, and the ratio of ascent is increasing year by year; but the proportion of people living at high or even moderately high altitudes is yet too small to afford anything more than preliminary and presumptive data from which to estimate the influence of altitude itself on the human organism, either in health or disease. True, it is found that persons removing from a lower to a higher level are often but not invariably profoundly affected, whether well or ill; but the same thing occurs in connection with a removal from a higher to a lower altitude, so that the change which follows removal in

either direction can not with fairness be wholly ascribed to the particular altitude selected.

In the United States, Gannett, of the Census Bureau, has compiled statistics which show that the proportion of the population dwelling in the lower altitudes is still greater. For example, more than seventy-five per cent. is found below 1000 feet, and ninety-nine per cent. below 5000 feet. He shows further, that the relative movement of the population is toward the higher levels, being most noticeable between the altitudes of 1000 and 6000 feet above the sea.

The general effects of living in high altitudes, as far as these may be considered established by concerted and repeated observation, are:

(1) Increased breathing capacity.

This result is partly mechanical, or mechanico-physiological, and is brought about by the necessity for inspiring an increased volume of air in order to secure the necessary oxygen. That is to say, the changed atmospheric tension calls for anatomical and physiological adaptation,—augmentation of the number (?) and capacity of the pulmonary air cells, and thoracic expansion.

(2) Acceleration of the respiratory function causes a corresponding movement in the circulatory apparatus, and gives a new impetus to all the vital functions. The more frequent and vigorous movement of the diaphragm reacts upon the digestive system, promotes more rapid absorption and assimilation of nutrient material, and at the same time hastens all the stages of both constructive and destructive metamorphosis, including elimination. While this may be called the secondary, it is by no means the less important effect.

(3) The atmosphere of elevated regions is less permeated with both harmless and hurtful germs.

(4) It is claimed, (Solly), that among the peculiar effects of high climates are an increase in the number of red corpuscles, an increased amount or proportion of hemoglobin, and an increase in the absorption capacity of the blood.

These results indicate that altitude may be invoked in all diseased conditions

which involve deficient hematopoiesis, and in a lowered condition of the assimilative and depurative functions.

Helix, California.

## ON THE VALUE OF BORIC ACID TO THE SURGEON.

By JOHN E. BACON, M.D.

To many excellent practitioners of medicine the mention of Boric acid carries the idea of the principal ingredient in eye waters, and nothing more. It has been used for this purpose so long that many other virtues which it has have been relegated to the background, until recently, and it is to these other uses that I wish to call attention in this paper.

Without "threshing over old straw" concerning its chemistry and combinations, let us come at once to the consideration of its practical application in the treatment of disease. Boric acid is antiseptic, but not powerfully germicidal.

In five to ten per cent. solution it retards the growth of most bacteria sufficiently to prevent their deleterious influences in the healing of wounds. It is also non-irritant to skin and mucous membranes, and last but not most important in this connection it is *soluble* in water and in the fluids of the body. To these three properties may be ascribed all its virtue as applied to the healing art.

Otorrhoea is one of the most difficult to cure of all conditions affecting the ear, and its rational treatment calls for the use of some non-irritant antiseptic. Boric acid perfectly meets this indication, and it may be used in various ways. As a lotion for use in gently syringing the ear a solution is very useful, and is preferable to any other drug for this purpose, a solution of ten per cent. in water being ordinarily the best. This will cleanse and at the same time medicate the parts. Insufflation of the impalpable powder into the canal is very useful in those cases in which granulations have formed about

the opening through the tympanic membrane, and is preferable to iodoform for this purpose for the reason that iodoform, being insoluble, will form crusts about the perforation and favor the retention of the discharge, while boric acid, being soluble, does not do this, but is partly dissolved in the discharge, rendering it harmless, and also by this means reaching some of the parts beneath. The writer prefers for use in the auditory canal a combination of boric acid with calendula, which was first suggested by Prof. Sexton, of New York. It is prepared by mixing equal parts by *weight* of boric acid and tinct. of calendula, and evaporating the mass slowly over a low flame, to dryness, and when dry reducing to a very fine powder in a mortar. It is then a yellow powder without appreciable odor, and even more soluble in fluids than the pure acid alone. The writer has treated many cases of obstinate purulent otitis media by cleansing daily with warm boric acid lotion and insufflation of this powder into the canal, and if necessary into the tympanic cavity itself if the perforation be sufficiently large. In many cases quite large granulations about a perforation will gradually disappear under this treatment, which otherwise would demand surgical interference. In a few cases in which the granulations were so large as to be almost polypoid, a mixture of boric acid and acetanilid was used with even more prompt results. The action of acetanilid upon granulation tissue is remarkable and resembles that of cocaine upon turbinal tissue to some degree; the granulations turn blue and shrink in size in a very few minutes, and the appearance is that of a decided decrease in the amount of blood in the part. Large granulations can be made to disappear in a few days under the above outlined treatment with a more satisfactory healing of the perforation than usually occurs after removal by snare or curette.

As a dusting powder for open and

closed wounds boric acid has but one rival—acetanilid—and the latter drug is open to one of the most serious objections that there is to iodoform, that of insolubility. The writer has had opportunity to observe a case in which the line of incision was nicely closed and thickly dusted with acetanilid after a small operation, in which there was great pain after about twelve hours and a slight rise of temperature. Fearing that infection had occurred the dressings were removed and it was found that the acetanilid had been moistened by a slight bloody discharge and had formed a hard crust over the entire incision, and that there was undue swelling of the immediate parts, with great tension upon the sutures. Upon raising the crust a quantity of perfectly clear and doubtless aseptic serum escaped and the pain was relieved. The man recovered without another bad symptom, but this would not have occurred had not the tension been relieved. Boric acid being soluble will not allow this accident to occur, but part of it being dissolved in the serum which oozes from a wound will escape with it and tend to keep the dressings aseptic.

Coleman, of Tacoma, has recently called attention to the utility of packing an infected wound, such as suppurating bubo, with the impalpable powder of boric acid, a procedure which he found of great value in a series of reported cases. His method consists in making a free incision into the swelling, curetting out of all infected tissue possible, and packing with boric acid, which unlike gauze does not have to be removed. The skin wound is closed after the powder is introduced. Dr. Coleman claims the best of results and that healing by first intention was the rule. The writer has had an opportunity to apply this method of treatment to but one case, a small abscess of the thumb, and the result was very satisfactory, healing occurring much sooner than in those cases previously treated by the usual methods.

This procedure should find a wide range of usefulness in the treatment of infected wounds, abscesses, some large furuncles, carbuncles, and sinuses, and is certainly worth a trial. Boric acid is safer than iodoform and more satisfactory in most instances for reasons above stated, but it comes hard for the old army and country surgeons to give up their old standby, smell and all.

In all operations about the nose, eyes, mouth, urethra and rectum, a saturated solution of boric acid should be used to the exclusion of the usual bichloride of mercury solutions. It will yield just as good results and the membranes will be spared the irritation which always occurs when mercury is used; indeed, the writer is convinced that some failures to heal in wounds and sores in these regions are due to the irritation of this drug.

After an extended trial of many formulæ for nasal sprays the writer has concluded that the vast majority of them are too irritating to be used in any but atrophic cases, in which a moderate amount of stimulation is useful. After spraying a hypertrophic case or a normal nose with Seiler's solution, for instance, a copious mucous discharge will be excited and continue for an hour, showing the irritating action of the spray. Boric acid in saturated solution is slightly irritant to the nasal membranes, but is not in solutions of less strength; for example, a formula like the following will be soothing to an inflamed membrane and non-irritating, while it is just as useful for cleansing purposes: Acid boric, gr. v; sodii bicarb., gr. v; glycerinae, 3 i; aquae dest., q. s. ad ȳ ii. M. Sig.: To be used in atomizer after being warmed.

Boric acid is cheap, harmless, and efficient, and will be found to meet all indications for a non-irritating antiseptic quite as well as most of the elaborate and expensive compounds now being pushed by our enterprising manufacturing chemists for recognition by the profession.

149 Franklin St., Buffalo, N. Y.

### CURETTAGE OF THE UTERUS.

A clinical lecture at the New York Post Graduate School and Hospital.

By A. BROTHERS, B.S., M.D.,  
Instructor in Gynecology; Visiting Gynecologist to Beth Israel Hospital; Attending Gynecologist to New Yorker Frauenklinik.

GENTLEMEN: Before presenting the cases illustrating the subject of our clinic to-day I wish to detain you a few moments with a short review of the various indications for uterine curettage and the method of its proper performance. If I understand my position correctly you would sooner understand and learn thoroughly one small operation—which you may yourselves be called on from time to time to do—than witness from a distance a dozen capital operations which you may never have occasion to do in a lifetime and which can only be learned after years of special schooling. This operation which I propose describing is one which each of you ought to be able to do well, and as the field for its performance is large and as its results are fairly positive, it is your duty to become well acquainted with the indications as well as to master the method of operating before aspiring to more ambitious work.

Broadly speaking, curettage of the uterus may be required for conditions dependent on pregnancy or independent of this state. Under the former heading we include those cases occurring subsequent to labor or miscarriage; under the latter heading, those conditions emanating from the non-pregnant uterus or adnexa.

After labor or abortion—particularly the latter—an adherent placenta may justify the immediate introduction of the fingers, placenta forceps, or curette into the uterine cavity with the object of cleaning it out. Subsequent to the time of labor or abortion uterine curettage is positively called for by the presence of three conditions: 1. a persistent mal-odorous discharge; 2. the presence of fever, chills, or rapid pulse, due to septic absorption



with or without a foul discharge; 3. persistent bleeding. In cases of foul-smelling discharge, suspicion points strongly to retained decomposing débris or puerperal endometritis. Repeated chills with fever and rapid pulse—in the absence of pelvic inflammation—offer a strong indication for uterine curettage. In persistent hemorrhages from the uterus following abortion or labor this operation works often like magic.

In non-pregnant conditions curettage is most frequently called for in cases of endometritis—whether hemorrhagic, fungous, polypoid, or gonorrheal. Again it is frequently resorted to for membranous dysmenorrhea, for ante flexion, for cervical stenosis, for fibroids or carcinoma, or for simple diagnostic purposes. Lastly, it may be done as a disinfectant procedure in connection with other operations—as repair of the lacerated cervix, vagino-fixation, or hysterectomy. In this connection I wish to call your attention to the operation as a possible curative procedure in cases of diseased adnexa—particularly catarrhal salpingitis. By a timely resort to such curettage with packing of the uterine cavity more serious operations may occasionally be headed off. It is very necessary, however, to call your attention at this point to exercise great caution in these cases as it is possible through carelessness to rupture an unsuspected pus-tube or the sac of an extra-uterine pregnancy.

Let me now briefly describe to you the steps of the operation and instruments used in its performance.

The operation is usually done under anesthesia in Sim's position or with the patient on the back. If in the former position, a nurse retracts the perineum with this Sim's speculum, or this self-retaining speculum of Cleveland is used instead. I prefer the patient to be on her back. The lower limbs are flexed and supported by assistants, or by a sheet folded lengthwise, or by special leg-supporters devised for this purpose. Having depressed the posterior vaginal wall with Sim's speculum, or

the self-retaining specula of Edebohls or Jacobs, the cervix comes readily into view and is seized at the anterior lip with volsellum forceps. The cervical canal, if closed, is next dilated with hard rubber bougies, or with the steel dilators of Wylie or Goodell. The uterine cavity having been irrigated with an antiseptic solution through a glass tube or Fritsch-Bozeman nozzle, you select a sharp curette of proper size and systematically scrape off the endometrium with a downward sweep of the instrument. The blunt curette may next be used, but this is not essential. After labor, with a large uterus and os, the disinfected finger may first be used and followed by placenta forceps or the ordinary large-looped vaginal retractor of Sim's, bent so as to resemble a curette. In these cases, if the sharp curette is used, the large one devised by Mundé is preferable. The uterine cavity is now irrigated and packed with iodoform gauze. Polk has devised a special speculum—which I here show you—through which the gauze is carried for this purpose. An ordinary pair of uterine forceps, or better, the laterally grooved sound of Edebohls, will usually suffice.

In using the curette, or forceps or sound, in these cases—particularly after labor—I would caution you to use great care as it is possible to force such instruments through the uterine tissues into the peritoneal cavity. This accident has happened many times, usually without serious result when the operation was aseptic, but occasionally with the result of having the intestine descend into the vagina. In the case of such an accident the proper procedure is to perform laparotomy, draw back the loop of the intestine and close the uterine rent.

After curettage the necessity of carefully packing the uterine cavity will be apparent when I tell you that there are cases on record, and I presented one to the class several months ago, in which the raw surfaces of the uterine canal became agglutinated from failing to observe

this precaution. In such cases amenorrhea with permanent sterility usually results, and I believe that many cases of this condition have formerly been disguised under the diagnosis of hyperinvolution of uterus or premature menopause or ovarian atrophy.

After the operation is completed an antiseptic pad and T bandage is applied and the patient put to bed with an ice-bag over the hypogastrium. If necessary a hypodermic injection of morphine may be given for pain. In forty-eight hours the gauze is removed and a vaginal douche given. In most cases—particularly those following labor or abortion—this will constitute the entire operative treatment. Some gynecologists, however, prefer to irrigate the uterine cavity and repack with gauze a number of times in succession at intervals of several days.

The patient is allowed to pass urine herself from the start. On the third day the bowels are moved. In the usual afebrile condition following the operation she is soon given ordinary food and allowed to turn about in bed. At the end of a week she may sit in a chair and, in most cases, before the end of the second week, she may be out of doors.

SCOPOLAMIN, the revised official title in the German Pharmacopœia for *Hyoscin*, correctly indicating the source of this alkaloid (*Scopolia atropoides*), has been widely adopted by the medical profession, and its increased application will no doubt secure for it an official place in the next U. S. P., in place of *hyoscin*, which was admitted to the current edition, but is alleged to be a trade-marked name.

ANTITOXIC SERUMS, of diphtheria and other bacilli, have been desiccated successfully, and these new biological products—which have well maintained their promise of therapeutic value—are now regularly dispensed in dry form; the advantages are: economy and safety in carriage and storage, prolonged period of potency, and facility in preparation and administration.

## PILOCARPINE.

By A. L. BENEDICT, A.M. M.D.,

Lecturer on Diseases of the Digestive Organs, Dental Department, University of Buffalo; Associate Editor  
*Medical and Surgical Reporter.*

This alkaloid, obtained from the leaves of *pilocarpus jaborandi* of Brazil, is official as a hydrochlorate. The plant also contains an antagonistic alkaloid, *jaborine*, whose action is similar to that of *atropine*, and the varying proportion of the two active principles renders the action of the crude drug or of its galenical preparations quite uncertain. The antagonism between *physostigmine* and *calabarine*, between *morphine* and *narcotine*, to some extent between *hyoscamine* and *hyoscyne*, are similar instances of the combination of antidotal drugs in the same plant.

*Pilocarpine* is a powerful local stimulant of glands and, to a less degree, of smooth muscle. The glandular action is manifested mainly in the outpouring of a copious perspiration and in free salivation. The action on unstriated muscle is most conspicuous in the eye, the pupil being contracted. There is, however, some danger of producing abortion from analogous effect on the unstriated muscle of the uterus. It is possible that stimulation of the growth of hair, sometimes observed after internal or local use of *pilocarpine*, is due to the contraction of the little muscles connected with the follicles. Muscular stimulation is followed by depression, of importance only in the case of the heart and arterioles. A fall of arterial pressure occurs after any fairly liberal dosage, so that the usefulness of the drug is limited in many cases of dropsy in which it is theoretically strongly indicated.

Probably the chief use to which *pilocarpine* has been put, is in the class of cases just mentioned. I have used it for the purpose of causing elimination through the skin, with apparently good results, in several instances, and without noticing the cardiac depression which so many clinicians emphasize. Indeed, I am con-

vinced that the eloquent warnings against such action, as against the cumulation of digitalis, the convulsions due to strychnine, the cyanosis and heart failure of acetanilid, are founded on experience with too large doses of the medicines in question. I must confess that I have never seen any of these untoward results. Although preferring the hot-air or steam bath, we must bear in mind that many patients are so situated that even the simplest apparatus is either obtained with difficulty or there is no one to be intrusted with its management. Many patients, too, will submit to drugging, who will defeat the best intentions of the physician in the way of mechanical and physical methods of treatment. Among the poor and ignorant, I have often substituted pilocarpine for the hot-air bath, and never with any more marked evidence of depression than is usually noted after the physically induced sweat, though the amount of elimination was apparently as great.

We must bear in mind, however, Bouchard's investigations as to sui-intoxication and the relative value of elimination through the skin, the kidneys, the bowels, and by bleeding. This author asserts, after the most careful experimentation, that the withdrawal of 32 grams of blood removes fifty centigrams of extractive matters—which he elsewhere argues to be the really toxic substances normally eliminated through the kidneys— $\frac{1}{10}$  of the entire daily renal elimination. This amount of blood also, is equivalent to 280 grams of liquid feces and to 100 liters of perspiration. In other words, a bath-tubful of perspiration does not represent the purification secured by removing a third of a pint of blood, or by a single copious liquid stool. However, we must remember that, in the practice of medicine, we must often be limited in the execution of theoretical indications, and that we have to be thankful for Hobson's choice rather than no choice at all. Moreover, I do not believe that clinical experience bears

out the extremely low eliminative value of perspiration assigned by Bouchard.

Pilocarpine ranks in dose approximately with morphine, emetine, apomorphine, etc. Two centigrams is on the danger line, one centigram is a full dose, five milligrams is efficient if we intend to repeat once or twice daily. In general, it is better to administer drugs by the mouth rather than hypodermatically, unless there is special reason for haste or for sparing the stomach.

Pilocarpine has been used, to some extent, to cause a free secretion from the respiratory tract. It has been given with the idea of floating off a diphtheritic membrane, but the indication merely to remove the membrane is so unimportant and the danger of cardiac depression is so great, that this use can scarcely be considered proper. It is said that pulmonary edema may be produced by too free administration of pilocarpine, the edema being of an active and secretory origin. Here, again, my personal experience fails. Some time ago, in treating a dilated and catarrhal stomach, due to weak circulation, and this, in turn, to a degenerated heart without valvular disease, it became necessary to attend to a complicating bronchitis. Ammonium chloride failing, and the secretion remaining tenacious and scanty, the following combination was ordered:

R Pilocarpin. hydrochloratis.....	.06
Sanguinarin. nitratis.....	.06
Syr. Tolutani et Aquae q. s. ad....	100.00

S.—Teaspoonful four times daily.

The secretion became quite free after three or four doses, but the medicine could not be continued on account of nausea. The nausea seemed to be due more to the necessity of swallowing than to any taste or direct irritation of the drugs. While in general practice, I used pilocarpine or some liquid preparation of pilocarpus with considerable success in similar bronchial conditions.

Pilocarpine may be employed as a galactagogue. I have frequently suggested

this use, but, as nursing women are not apt to come under my direct care, no cases can be reported, though my impression is that most of the cases in which the suggestion has been followed out, have resulted favorably.

Mumps, though theoretically falling within my field of practice, is a disease that I do not now often encounter. The non-infectious cases of parotitis or inflammation of the other salivary glands that I have seen, have always presented some conditions that seemed to counterindicate a forcing of the secretion and to call rather for external applications and sedatives. However, in all these cases, there is good authority for using pilocarpine.

Pilocarpine is recommended for use in the eye to neutralize the mydriatic effect of cocaine and to stimulate the absorption of retinal exudates.

It has been suggested, from the occasional thickening and darkening of the hair during the administration of pilocarpine in Bright's disease, that it might be employed as a "trichagogue." I have mentioned this fact to a number of persons under treatment for other conditions, who have asked for something to prevent falling out of the hair, or to stimulate the beard or mustache. In some instances, particularly in the former condition, pilocarpine has had the desired result, but it has not proved successful in forcing a premature growth of hair on the face. It is a common observation that the beard grows more rapidly during warm weather, and I would suggest that the stimulating action of pilocarpine, when manifested, is due simply to a concomitant increase of function of sweat glands and hair-follicles.

Some physiological experiments have shown that pilocarpine increased the secretion not only from the skin, salivary glands and respiratory tract, but from the stomach, pancreas and liver. Last summer, I undertook to use the drug in atonic dyspepsia. First, a number of experiments were undertaken on dogs. Un-

fortunately, the only ones obtainable at the time were those about to be put to death by the humane society, by means of suffocation with illuminating gas (containing CO.). I was allowed only to give the drug a short time before death and to open the stomachs after the dogs had been suffocated. No difference could be seen in the condition of the stomach contents, according to the time at which the drug had been administered—ranging from fifteen to forty-five minutes—nor according to whether it had been administered at all or not. However, the conditions were so unfavorable for drawing inferences, that I was not deterred from clinical use of the drug.

Let me explain, that I use the term *atonic dyspepsia* as indicating a purely functional disturbance of gastric digestion in which motility and hydrochloric acidity are both below par, whether fermentation acids have developed secondarily or not, unless they are so much in excess as to imitate the irritability and increase of motor function seen in cases of genuine superacidity. I have been criticized for not using the term *hypo-acidity* and for employing the word *atonic* in other than a muscular sense. The term *hypo-acidity* is a crime against etymology. Let us either say hypoxytic or subacid, or, better yet, simply state that not enough hydrochloric acid is formed. As to restricting the use of the word *atonic* to cases in which chemical digestion is normal, but in which motor power has failed, I must confess that my experience scarcely includes such a case, and I doubt the propriety of making discriminations which excel in nicety those made by the disease-processes which we are attempting to describe.

After all, there is nothing unscientific in recognizing the fact that the functions of the stomach rise and fall together. Granting that we might make so nice a differentiation so far as diagnosis is concerned, until recently we have been practically reduced to one drug, strychnine, or some imperfect substitute for it,

whether we wish to stimulate glands or muscles. However, it seems to me from recent experience that pilocarpine does exert an influence on gastric secretion superior to that of strychnine. In a few cases at the beginning of my clinical study of this drug, the results were good; then, a number of failures with some successes were recorded, later the results have again been quite uniformly good. During the last four months, I have had under close observation a case of dilatation of the stomach, in which the symptoms were at first so grave as to suggest cancer to several physicians who saw the patient, but in whom an entire return to the normal size of the organ and a relative recovery of general health, have completely disproved such an idea. There remained, however, a dyspepsia of the subacid and atonic type, which does not readily yield to treatment with hydrochloric acid and antiseptics. Pilocarpine has hastened digestion and has almost entirely removed the important symptoms of fermentation of undigested food remnants. Thus, from a moderate but certainly not entirely convincing experience, I believe we may conclude that pilocarpine is a valuable stimulant to glandular activity on the part of the stomach, though not an infallible remedy. In this use, five milligrams, given before or some hours after eating, seems to be the standard dose.

It is always satisfactory to receive an explanation of the manner in which a drug operates. Dr. Louis Waldstein, in the *Berliner Klinische Wochenschrift*, details a careful study of the blood in diphtheria. He finds that a favorable issue depends directly on the number of lymphocytes and inversely on the number of multinuclear leucocytes. An increase of the former and a decrease of the latter are found to follow the administration of anti-toxin and also of pilocarpine. Both theoretically and practically he deduces the value of pilocarpine in treating multiple lymphomata, streptococcus pharyngitis,

and even tuberculosis, when not too far advanced. It is not strange that a glandular stimulant of such power as pilocarpine should also stimulate the uni-cellular glands of the blood. If this action is confirmed by more extended experience, another signal victory has been achieved by modern medicine.

174 Franklin St., Buffalo, N. Y.

### *CYSTIC OVARIES—EXTRA UTERINE PREGNANCY.\**

By AUGUST SCHACHNER, M.D, of Louisville, Ky.

#### NORMAL SALT SOLUTION FOR IRRIGATING THE ABDOMINAL CAVITY.

I have a specimen here which I would like to present, and briefly report the case. The patient is the wife of a gentleman interested in medicine, living in Illinois. I saw her first about two months ago. She is thirty-five years of age; mother of three children; has had two miscarriages. She gave the history of having had a great deal of pain with her menstrual periods; she was very nervous and hysterical, and complained of pain during intercourse. Upon examination under chloroform I diagnosed cystic ovaries and advised an operation. They considered the matter for a time and finally concluded, for certain reasons, they would not submit to an operation at that time; but the patient was brought back to me for an operation two weeks ago. I examined her again, and took her to my hospital and operated there one week ago last Saturday. I found the ovaries cystic, as I suspected, and on the right side found the greater omentum bound down throughout the whole right iliac fossa; separating the adhesions I found an immense amount of blood clots and broken-down membranes. I take the condition to be a tubal pregnancy which had ruptured some time ago, and of course nature in her efforts to re-

\* Reported to the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.

lieve the condition had filled in everything with greater omentum. I tied off some of the omentum, separated all adhesions, scooped out the clots, tied off the tube and ovary, taking everything away, and flushed the pelvic cavity with about a gallon of normal salt solution, then packed Douglas' pouch with iodoformized gauze and closed the abdomen. She had absolutely no trouble following the operation, no elevation of temperature and no acceleration of pulse, and has since made a very good recovery.

#### DISCUSSION.

Dr. Louis Frank:—The specimen seems to be one of extra-uterine pregnancy, but of course this cannot be definitely determined unless a microscopical examination is made. The microscope will probably show placental formation, chorionic villi, etc., which would positively prove that it is an extra-uterine pregnancy.

This case illustrates one point, *i. e.*, it is a case in which very little good could have been accomplished by a vaginal operation. It is certainly one case that could not have been operated upon favorably from below. Where the indications are to operate through the abdomen, the adhesions may be much better handled, and if there is no necessity for removing the appendages they may be left; the uterus may also be examined and if in a normal condition need not be removed where the abdominal route is used.

I am glad to see that Dr. Schachner used, for irrigation in this case, the normal salt solution. I am surprised that the normal salt solution has not been more frequently used for abdominal irrigation. It has been the custom, as we know, to use ordinary hot water. I have used salt solution in all irrigation of the abdominal cavity recently, and in most cases, I believe, it is preferable to hot water. Hot water, as we know, acts rather unfavorably on the tissues, causing the blood to shrink from the surface, swelling the blood corpuscles, and also has a bad effect upon the epithelial lining of structures, while re-

pair takes place more slowly, thus favoring sepsis. This is not the case when we use normal salt solution, and I hope to hear further reports where salt solution has been used in preference to ordinary hot water for irrigating the abdominal cavity.

Dr. W. H. Wathen:—I do not know that I can add anything to what has already been said by Dr. Schachner, and in the discussion by Dr. Frank. The indication for operation was plain, and the result all that could be desired; but the diagnosis of extra-uterine pregnancy cannot be made positive unless the chorionic villi can be found in some of these structures. If this be extra-uterine pregnancy it is rather unusual in the fact that the rupture into the peritoneal cavity caused so little hemorrhage, shock, or injury to the woman. In nearly all cases of extra-uterine pregnancy that rupture into the peritoneal cavity, unless operated upon promptly, the patients die. Again, the tube in this case is rather too patulous for a tube where there has been an extra-uterine pregnancy; still that does not positively contraindicate extra-uterine pregnancy, because we find a great variety of conditions in these cases. I am inclined to believe, however, that it is a case of extra-uterine pregnancy, and think the microscope will show chorionic villi.

Dr. Louis Frank:—The tube in this case, as far as I can judge from the specimen, is perfectly patulous.

Dr. W. H. Wathen:—It is true that the tube appears normal at the outer extremity, and seems to be perfectly patulous, but probably an obstruction existed preventing the passage of the impregnated ovum into the cavity of the uterus.

Dr. Louis Frank:—If impregnation takes place high up in the tube, why may we not have an extra-uterine pregnancy with rupture into the peritoneal cavity, and the tube still remain patulous?

Dr. W. H. Wathen:—I hardly think that extra-uterine pregnancy occurs in healthy tubes. I am inclined to the opinion that extra-uterine pregnancy is almost invari-

ably due to some diseased condition of the tube where there is probably chronic inflammation narrowing some part of the tube to such extent that the impregnated ovum cannot readily pass into the uterine cavity; or, possibly, there may be some narrowing with a sacculated condition where the impregnated ovum falls into the sac and the embryo develops there. But, while I am of this opinion, and while I believe this is the opinion generally entertained, of course, there may be exceptions and we have no proof showing that extra-uterine pregnancy may not occur in healthy tubes.

Dr. August Schachner:—Speaking to the point of selecting the pelvic route in preference to the abdominal, or the abdominal in preference to the pelvic route: I did not diagnosticate extra-uterine pregnancy before the operation; I operated for cystic ovaries. I would like to emphasize a point that Dr. Frank has made, which I think is a very good one—the use of the normal salt solution. It seems to me an unfortunate thing that this solution is not being used more generally, not only in abdominal but in other wounds. I know those who have used it have been surprised to see how quickly it clears away the blood and renders the tissues clean and normal in appearance; it also acts as a hemostatic. Instead of favoring a profuse oozing, as do many of the antiseptic solutions, it has an opposite effect. I quite agree with the other gentlemen who have spoken, that the chorionic villi must be demonstrated before we can positively say that this is an extra-uterine pregnancy. Dr. J. Bland Sutton makes this point very emphatic. My conclusion may be a little premature, but I think the microscope will prove that we have here an extra-uterine pregnancy. I cannot agree in what Dr. Wathen has said about the tube being patulous and still having a rupture of the tube with clots in the pelvic cavity. In this case many more clots were washed away than are represented here. While, as before indicated, I cannot

state positively that this is an extra-uterine pregnancy, until a microscopical examination has been made, proving or disproving it, still I feel sure the microscope will show the presence of chorionic villi, which will positively settle the question.

Dr. W. H. Wathen:—Dr. Schachner has said that hemorrhage may be controlled by use of the normal salt solution. Is there any instance in which peroxide of hydrogen can be used in the abdominal cavity, over a large surface, without injuring the peritoneum?

Dr. August Schachner:—I think peroxide of hydrogen can be used to great advantage, but it could not be used liberally and kept long in contact with the peritoneum without injuring the structure. No one would think of using peroxide in a fresh wound cavity; to keep it long in contact with the peritoneum, I think, would be a bad plan. Its principal feature is to neutralize noxious materials, and while it may be used to advantage in the abdominal cavity, it should be confined to the infected region.

### *OVARIAN ADENOMATA WITH EXTENSIVE ADHESIONS.\**

By WILLIAM H. WATHEN, M.D., LL.D.

Professor of Abdominal Surgery and Gynecology in the Kentucky School of Medicine; Fellow of the American Gynecological Society and of the Southern Surgical and Gynecological Society; Consulting Gynecologist to the Kentucky School of Medicine Hospital and the Louisville City Hospital, etc. etc., Louisville, Ky.

This morning I removed this specimen—ovarian adenomata—from a lady from Indiana, aged thirty-three years, the mother of two children, and who has had one abortion. The last child was delivered two years ago, and after its delivery the abdomen remained very large. The woman was examined and an ovarian tumor diagnosticated. Nothing was done until the following April, when the attend-

\* Reported to the Louisville Clinical Society, and contributed exclusively to THE AMERICAN THERAPIST.

ing physician, in a town of about twelve thousand people, tapped the tumor and drew off several gallons of fluid, which rapidly re-accumulated and the tumor became larger than before tapping. She was quite feeble, pulse 110, very anemic, and much emaciated. Otherwise there was nothing abnormal in her condition except the tumor.

The abdomen was opened and the tumor found adherent to the abdominal wall, and all the contents except what was contained in the honey-combed adenomatous enlargements was discharged without opening the peritoneal cavity. The cyst was adherent to the abdominal wall and other structures over a surface fifteen or twenty inches in diameter. The tumor and its contents weighed about fifty pounds. Oozing was very great and for a while I was fearful that I could not control it, but after enlarging the incision I tied most of the bleeding points, and the points that could not be located were well up in the region of the spleen and the left lobe of the liver, which I finally tamponed with the Miculicz gauze practically controlling all hemorrhage. A drainage tube was placed in the lower angle of the wound. There has been no further hemorrhage and the patient is in a much better condition this morning.

We had all thought that intelligent physicians had discontinued tapping cases of ovarian tumors, especially in cities of ten to twelve thousand people, but this case shows that they have not. The case reported is rather unusual because of the extent of the adhesions. Two of these adenomatous masses present internally and show no evidence of their existence externally, and have grown very dark in color. It is possible that these have taken on malignant degeneration. They seem not to have projected through the wall externally. This specimen looks very much like an illustration in J. Bland Sutton's work on the ovaries and tubes, illustrating a typical ovarian adenoma.

In ovarian adenomata the tumors often

grow very large, probably many of the cysts breaking down into a single cyst, but you will find nearly always more or less intra-cystic growths of this kind, some of them protruding externally having apparently gone through the fibrous wall of the large cyst.

#### DISCUSSION.

Dr. P. Guntermann :—Dr. Wathen says in a town of ten to twelve thousand inhabitants there ought to be an *intelligent physician*; that an *intelligent physician ought not to tap an ovarian cyst*. I beg to differ with him. I think we often ought to tap an ovarian cyst, and if we tap them in time we may avoid a great deal of trouble. We tapped them twenty and thirty years ago, even before it was the custom to perform a laparotomy for such a condition, and we shall continue tapping them and achieve in a great deal of good in many cases.

Dr. Carl Weidner :—The specimen presented by Dr. Wathen seems to me to be one of typical multiple cystic adenoma. In this connection I would like to simply say a word about the preservation of these specimens. I would suggest to the gentlemen who are interested in the preservation of specimens to make use of a solution prepared expressly for hardening. I can recommend most heartily a solution which has been in use for the past year or two—Formalin. I think this is the best solution we have at the present time for the preservation of tissue. It is specially adapted for use in preserving specimens which are afterwards to be submitted to microscopical examination. Tissue frequently undergoes marked changes when placed in alcohol. We have an example of this in case of the testicle; if a testicle is removed and placed in alcohol to be preserved it may harden on the outside and break down by softening in the deeper portions. A 4 to 5 per cent. watery solution like Formalin will penetrate deeply into the tissues, at the same time it will prevent coagulation of the albuminous bodies which is caused by



alcohol. Formalin is also the most desirable means that we have for hardening and preserving the eye, and should be of especial value in the preservation of tissue such as presented to-night. Tissues preserved badly in a deficient quantity of alcohol are entirely unfit for histological examination.

Dr. Louis Frank:—As to the use of Formalin for the preservation of specimens: I can most heartily indorse what Dr. Weidner has said. I have used this preparation and have found it very desirable. The proper preservation of valuable specimens for future microscopical examination is a matter that is frequently overlooked, and when we make our examinations we find that such marked changes have taken place in the tissues that we are unable to positively prove anything. Formalin preserves epithelial tissue especially well, and I would earnestly recommend its employment.

I most certainly agree with what Dr. Wathen has said: I am surprised that a member of the Clinical Society should in this enlightened age get up and advise tapping an ovarian cystoma. To say that I am surprised hardly expresses my meaning. It is certainly as strange to me as it is to Dr. Wathen, that in a town of twelve to fifteen thousand people, an intelligent physician should to-day attempt to cure an ovarian cystoma by tapping. It is a most dangerous procedure; I believe Dr. Wathen will agree that it is one of the most dangerous things that can be done. There are several dangers; there is first the danger of setting up peritonitis from escape of fluid, no matter how slight, into the peritoneal cavity. We do not know whether the fluid is septic or virulent; we cannot tell just what the character of the cyst may be by any external examination; nor can we tell that the contents are or are not septic or virulent; moreover we do not know when these tumors are cancerous and when they are not cancerous. By tapping some of this fluid gets out into the abdominal cavity and we may have

set up a diffuse inflammation, so if the cyst is papillomatous or cancerous it may give rise to a great number of papillomatous or carcinomatous nodules, a condition infinitely worse than before tapping was performed. Tapping also causes adhesions, and I have no doubt the tapping which was done had much to do with the adhesions Dr. Wathen has spoken of in the case he has reported. These cases should not under any circumstances be tapped. Many women have been killed by such a procedure. If we were sure of the aseptic nature of the fluid, if we could tap these tumors without any danger of getting fluid into the abdominal cavity, then tapping might possibly be resorted to, but even then I doubt the advisability of such a course, when we consider that by tapping we cannot possibly hope to cure the patient. It is like tapping any other cyst, it is merely a question of time until they refill. We cannot inject any irritant nor by mechanical agents set up an intracystic inflammation that would cause adhesions between the sac walls and thus obliterate the cyst, as is the case with hydrocele for instance, and until the sac is removed there will always be a refilling no matter how often tapping is practiced.

As Dr. Wathen has said the only treatment to be advised in these cases is to open the abdomen and remove the cyst. It is seldom now-a-days that we encounter an ovarian cyst as large as the one presented to-night. Our improved methods of examination, and improved diagnostic ability enable us to recognize these tumors much earlier than we formerly did, and they are removed by surgical means before they have attained such an enormous size. Where an ovarian cyst has attained any considerable size, it is usually in those cases where general practitioners have resorted to the tapping process, regardless of the great dangers to which they subject their patient, instead of the radical cure to which they should be subjected.

I recently removed a very small ovarian cyst, possibly not more than two inches

in diameter, which could be easily felt, and which would have gone on enlarging if it had been left alone. In closing I will repeat that I am surprised that a member of the Clinical Society should in this enlightened age advise tapping an ovarian cystoma.

Dr. P. Guntermann:—I said that it was advisable in many cases to tap an ovarian cyst, and I say it again. I believe there are thousands of people who will agree in the statement, that it is not a very dangerous procedure, and that in many cases it results in much good to the patients. I do not believe all these cases belong to the laparotomist, although they would have us so understand. I believe I am correct in the position I have taken, that we have been tapping ovarian cysts for years, and will continue to do so and have good reasons for hoping that our patients will be relieved by this procedure. We tap these tumors and the patients get well, regardless of the fact that the latter day surgeons claim a laparotomy is demanded just as soon as a diagnosis is made of ovarian cyst.

Dr. W. H. Wathen:—I agree in the opinion that it is unwise to tap or aspirate an ovarian cystoma, or any tumor that arises from the adnexa of the uterus, for the following reasons: we cannot cure them by tapping; we may possibly destroy life immediately; or in any event may cause extensive adhesions which will make an operation for removal of the tumor complicated that would have been a simple affair if resorted to before adhesions had formed. I think it is the duty of everyone to insist upon members of the profession letting these cases alone except to operate upon them.

Dr. Guntermann probably refers to some other abdominal tumors besides those arising in the ovary, the hilum of the ovary and parovarium. Still it matters not what may be the nature of the tumor, how bland and innocent its contents may be, we never know what is the condition until we have tested the matter, and in a

case where we would expect the contents would be sterile, we would probably find the condition exceedingly virulent; while in another case we might have a very large tumor and would expect to have a virulent form of liquid, but find it sterile. So it is impossible to know just what conditions we are dealing with in tapping or aspirating tumors in the abdominal cavity. There are so few instances where it might be decidedly injurious, that I feel it is the better plan to tap or aspirate no intra-abdominal tumor. If ovarian tumors are operated upon when small, or as soon as they can be well diagnosticated, in women otherwise healthy, the operation will be successful; but if allowed to go on until the tumors reach an enormous size, as the case reported, then many of them will die; and if this patient does not recover from the operation it will be because she was tapped and an operation deferred. I have never seen any good result from tapping ovarian tumors, and have seen a great deal of harm. Even delay without tapping is harmful, and every general practitioner who encounters an enlargement of the abdomen should either himself, or have someone else, decide as to its character, and if it proves to be a cystic tumor arising from any part of the pelvis, it ought to be removed. If it proves to be a solid tumor it should be removed provided the symptoms are such as to endanger life, or to injure adjacent organs, or to cause such a degree of suffering to the woman that life is not a pleasure.

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ACONITINE was the subject last year of an investigation by Dohme, who established that the samples procured in the American market and examined by him varied considerably from the standard, especially in the proportions of allied alkaloids contained therein.

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AQUEOUS SOLUTIONS of thymol are sometimes required; by preparing first a 6 per cent. thymol solution in 94 per cent. alcohol, and then adding a small quantity of glycerin, the percentage of water which can be added without separation of the thymol is considerably increased.

# THE AMERICAN THERAPIST.

*A Monthly Record of Modern Therapeutics,*

WITH PRACTICAL SUGGESTIONS RELATING TO THE  
CLINICAL APPLICATIONS OF DRUGS.

CONTRIBUTIONS on appropriate subjects are solicited. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

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## ANNOUNCEMENT.

DR. JOHN AULDE, editor of this journal from its inception, has resigned the editorship and his interest in the AMERICAN THERAPIST. Dr. Aulde is an original thinker and an accomplished writer; his best work during the past few years has been devoted to this journal, and the four volumes (now nearly complete) contain editorials and essays—written or inspired by him—which have helped to direct as well as record progress in therapeutics.

Other important interests have engaged most of the time of Dr. Aulde during the past year, and have seriously interfered with his editorial work, finally necessitating his withdrawal; we believe, however, that he will frequently contribute to these columns in future.

There will be no change in the policy or character of this journal; in fact, the editorial assistance entrusted with the make-up of every number from the first is retained, and this assures continued uniformity.

We have been fortunate in securing promises from a number of well-known authors of regular contributions for our columns, which will enable us to present the usual quota of original papers in each issue. The other departments will be maintained as heretofore; the Book Notices will be furnished by specialists, so that our expressions will carry weight and serve as a guide to our readers in selecting new books for purchase.

We solicit the continued good will and support of our readers, and will give them in return as good a journal as the support will warrant.

THE PUBLISHER.

CAFFEINE SYNTHESIS has been accomplished by E. Fischer and L. Ach, and the discovery is interesting and valuable scientifically; but it will not be commercially utilizable unless the process can be cheapened below the cost of making caffeine directly from tea leaves.

## Editorial.

### MODERN ANTIPYRETICS.

Quinine has long held the supreme place as antipyretic; it is universally employed, and in general estimation is reliable and least harmful. But it has limitations in its therapeutic range, and the endeavor to produce a synthetic substitute—which has resulted in the introduction of a host of new remedies, and may be said to be responsible for the rich crop of new remedies of synthetic chemistry of the last fifteen years—is no longer spurred by the hope of finding a *cheap* but a *perfect* antipyretic to replace the cinchona products.

The synthetic competitors of quinine, commencing with kairin and thallin many years ago, and among which acetanilid, antipyrin and phenacetin loom up as most successful during the past ten years—with a present waning in their popularity—have been introduced in endless numbers, and more are yet coming. The status of each, physiologically and therapeutically, has been clearly defined by eminent medical authorities, at home and abroad; most of them are good and reliable agents if properly used, but all of them contain elements of danger—through incompatibilities, idiosyncrasies of individuals, and toxicity in excessive doses.

The general practitioner, who accepts and is guided by the literature on such products as supplied to him, has gradually developed a prejudice and is more or less sure that these “coal-tar products” are dangerous; he tries each in turn, casually, and is scared off by the slightest untoward effect or by the flimsiest criticism.

In considering this subject recently, prompted by a letter of enquiry from one of our readers, we looked through many text and reference books of recent issue, and among them the excellent work of Dr. ISAAC OTT, entitled “The Modern Antipyretics,” published in 1892. We believe this book should have the widest possible circulation; it is an essay of ex-

ceptional thoroughness, high scientific standard, and instructive authority. Some forty antipyretic chemical compounds (all existing in 1892) are fully and impartially described, their properties and value presented and their limitations exactly exhibited. A perusal of this work would enlighten every reader, and would help to a correct estimate of these products generally.

We wish that Dr. OTT could be induced to issue a revised edition, including, the numerous new aspirants since 1892, particularly lactophenin, citrophen, apolysin, etc., and then we would inaugurate a movement to have the medical journals of this country promote a distribution of the book which should include every physicians in the United States.

No therapeutic agent is used oftener than the antipyretic, and more specific information on the aspirants of this class will be of the greatest value to the profession and its clients.

#### EDITORIAL NOTES.

THE FOLLOWING list of products introduced during recent years as *iodoform substitutes* is compiled by Dr. F. Koelbl (*Wien. med. Presse*), and exhibits both how futile the attempts have been and how important a perfect discovery would be: iodol, soziodol, sulfaminol, aristol, euphen, euphorin, pyoktanin, dermatol, dermol, tribromphenol and compounds, bismuth compounds, thioform, loretin, airol, iodoformin, nosophen, etc. All these have limited usefulness, but the dermatologist always returns to iodoform as most reliable—even though disagreeable. Suggestions for disguising the odor of iodoform have also been offered in untold numbers, but there is yet room for a perfect formula.

NEW REMEDIES have appeared in goodly number during the past year, but very few represent new discoveries—the activity of manufacturers being apparently confined to exploiting the already popular leaders of recent years by introducing

variations or compounds of same. Phenacetin, for instance, is now represented by a dozen variations or analogous compounds; similarly antipyrin, piperazin, the cresols, creosote, guaiacol, bismuth, etc., have furnished many salts and compounds, and all supplied with euphonious utility names. Without representing elementary progress, therefore, the list of new remedy names has been liberally augmented, and forms now a bewildering host which no pharmacist can marshal and no physician would care to study *in toto*.

KOLA PREPARATIONS in endless array have been introduced during the past year, and the public has been educated through newspaper puffs to look for marvellous strengthening power from any proprietary form of kola—while the legitimate use of kola medicinally has rather decreased, and it has been more or less discredited in the minds of the medical profession. The opinion is logical, that the principal therapeutic value of kola lies in its caffeine; if there is special potency in the combination of principles in the crude fruit, it is also true that this has been observed only when the fruit is taken *fresh*—and not dried, transported and stored for months, and finally incorporated into palatable and elegant wines, elixirs, tablets, etc. In France kola preparations have long been popular, but there is no pretence there to deny that caffeine is used and kola gives the name.

#### Correspondence.

##### POST-PARTUM HEMORRHAGE.

Editor THE AMERICAN THERAPIST.

SIR: Having read the interesting paper with discussion on Post-partum Hemorrhage, with special reference to the value of removing the clot or not, I desire to record a case I had recently, in which both methods had a fair trial—with no styptics available, and the patient almost dying on my hands.

Mrs. H., 36 years; eighth confinement. I saw her at 4 P. M. o'clock, labor in progress twelve hours, and I was called by the woman in attendance because of the delay. Diagnosed occipito-left-anterior position, os fully dilated, ruptured membranes; spontaneous delivery within ten minutes. Child's weight about 14 pounds; placenta delivered 30 minutes later, very large. Gave a teaspoonful of ergot, cleaned patient, changed bed, etc., and put on abdominal bandage against my free will.

Left instructions to watch, and how to control hemorrhage by manipulations; then, with coat on and ready to leave, I noticed she suddenly became white. I immediately removed the bandage, found uterus enlarging and could not control it by external manipulation; gave another teaspoonful of ergot; used one hand in vagina, but of no use—uterus continued to enlarge, and patient to decline. Then I put left hand into uterus, and right outside, cleaned out everything, and as soon as hot water could be obtained for use, I introduced tube, with hand still inside, and used several quarts before uterus finally contracted. Gave ergot, hydrastis and viburnum for next two days, and there were no signs of recurrence.

Notwithstanding tonics and Bland's pills for some time, patient still (seven months later) shows the effects of that hemorrhage.

Though leaving in the clot may do all right in many cases, I am afraid in this case I would have regretted reliance on this method very much.

JNO. A. DONOVAN, M.D.

Georgetown, Mich.

ACETANILID IN TREATMENT OF WOUNDS.—  
DRS. F. L. and J. R. Haynes tabulate their methods of treatment in the *Southern California Practitioner*, with special reference to the value of acetanilid. The preparations used are the following:

(a.) *Acetanilid-glycerin* is made by rubbing together forty parts of cold sterilized

glycerin with one part of acetanilid powder (not crystals). No heat must be used in making this glycerol, lest crystals should deposit.

(b.) *Boric-acetanilid* is made by mixing thoroughly powdered boric acid, 6 parts, with powdered acetanilid, 1 part. It is stored in little glass bottles holding 70 grains. Not more than one of these bottles is to be emptied, in the case of an adult patient, in twenty-four hours. It is dusted over wounds, so as to form a thin layer. If used in large quantities, it cakes and produces irritation of the skin, and, sometimes, superficial ulceration. If for any reason, it is used in large quantities, it must be covered with gauze and with paraffin paper to prevent caking.

(c.) *Acetanilid-vaselin* is made by rubbing powdered acetanilid, 1 part, with white vaseline, 20 parts. It is very useful as an application to cracked nipples and superficial lesions generally. Using precautions against poisoning, the strength of this ointment may be increased.

(d.) *Acetanilid-gauze* is made by dusting  $17\frac{1}{2}$  parts of boric-acetanilid over  $82\frac{1}{2}$  parts of sterilized gauze (making  $2\frac{1}{2}$  per cent. acetanilid-gauze), in the form of hemmed strips 10 feet long and 1 inch broad. These strips are then rolled like ordinary roller bandages, stored in sterilized, air-tight jars, and used in the place of iodoform gauze.

(e.) *Acetanilid-oil* has been used in a few cases of rectal disease as an injection. It is made by rubbing together acetanilid and olive oil, 1 to 40.

They summarize: Where it has been possible to bring acetanilid-glycerin into intimate contact with a suppurating surface (not involving a bone), suppuration has ceased almost immediately. Abscesses of the breast have been cured in a week; large retroperitoneal tubercular abscesses in two weeks; and excessive abscesses produced by perforative appendicitis in two weeks. Aseptic sutured wounds have, almost without exception, healed primarily. Aseptic open wounds have healed more rapidly than under any other treatment.

## Book Notices.

**MANUAL OF CHILD NURSING.** BY CHARLES JEWETT, A.M., M.D., Professor of Obstetrics and Diseases of Children at the Long Island College Hospital. Fourth Edition, revised and enlarged. Pp. 60. New York: Bailey & Fairchild Co., 1895. (Price, 50 cents.)

Originally prepared for use in the Training School for Nurses at the Long Island College Hospital, this manual, has been adapted for general use, and so completely covers the purpose that its circulation will undoubtedly be widely extended. It gives specific directions, meeting every condition and emergency in detail, for nursing during pregnancy, labor, the puerperal period, care of mother, of the child, for artificial feeding, etc., and concludes with a good glossary of terms current in this practice. Physicians might well keep a supply of these books, to present a copy to every patient before confinement, for instruction and subsequent guidance of the nurse.

**DIETS FOR INFANTS AND CHILDREN IN HEALTH AND IN DISEASE.** BY LOUIS STARR, M.D., Editor "American Text-Book of the Diseases of Children." Philadelphia: W. B. Saunders, 925 Walnut St. 1896. (Price, \$1.25.)

This is a very compactly bound book of Diet-blanks, perforated, to be torn out and left with the nurse. There are seven forms for health: A, from birth to 7th month; B, 8th and 9th months; C, 10th to 12th month; D, 12th to 18th month; E, 18th month to 2½ years; F, 2½ to 3½ years; G, during childhood; and 14 forms for disease. Similar blanks, giving directions for the "Preparation of Diluents and Foods" (very complete and terse) complete the book. These blanks are very serviceable, save much time of the physician, and will ensure comfort and proper condition of the child. The book contains enough of each kind of blanks to last a regular practitioner many months; it is a desirable and convenient book to have.

**PEDIATRICS, THE HYGIENE AND MEDICAL TREATMENT OF CHILDREN.** By THOMAS MORGAN ROTCH, M.D. Philadelphia: J. B. Lippincott Co. 1896.

It is extremely refreshing in these days of "Systems," "Cyclopedias," and "Annuals"—got up at short notice and with little effort by numerous writers of varying abilities—to encounter a really good book, prepared by one man after years of hard work, and showing the results of patient, untiring, and original research. Although Dr. Rotch is not unknown in the pediatric world, he may rest assured that by his latest effort he has placed himself on a pinnacle which will be beyond the reach of his co-workers for years to come. He has produced a genuine master-piece, and has presented us with the most modern aspect of the subject. If only the over-zealous "lecturers" and "professors" of pediatrics—who are so anxious to seek advertisement and fame by inferior works produced with little original effort—abstain from crowding this book to one side, it ought to be the only standard work on pediatrics in the English language for a long time.

As a whole, the book is rather large—perhaps too bulky for a text-book. It cannot be regarded as an encyclopedia—although it very thoroughly covers the entire field of diseases of children—because it is distinctively the work of one individual, and refers in the main to the experience and observations of that individual. With a few exceptions, literature is omitted, and the work is framed in a series of didactic lectures. Illustrations constitute a prominent feature of the work, and a pleasant hour could be spent in simply looking at the pictures. In fact, one is almost led to suspect that the author is accustomed to visit his patients with an artist and a photographic camera; for nearly everything—from an attack of bronchitis to numerous varieties of intestinal discharges, has been illustrated by original photographs or drawings.

It would, of course, with the limited

space at our disposal, be impossible to give a detailed critical review of a book consisting of 1101 pages, but some of the most interesting features may be noted in passing. The author makes no attempt to follow the older classifications of "infectious" and "non-infectious" diseases. He has, however, made an effort in the right direction in trying to simplify the nomenclature of his subject.

The author devotes much space to the normal development and blood of the infant from the time of its birth. It was to be expected that a good portion of the book would be devoted to that special field in pediatrics to which the author has given so much of his study—namely the artificial feeding of infants. There can be no question but that the rearing of artificially-fed infants, in the future, will depend, in great measure, on the use of modified milk. The method is thoroughly rational and in the direct line of scientific progress. Particularly ought this method be pushed in institutions where we all know infantile mortality to be simply frightful.

The hygiene of the nursery is described in an interesting chapter, which, unfortunately, is only applicable to the wealthier classes. Like all other authorities, mother's milk is given first place in the feeding of infants. Curiously, however, the author would substitute his "modified milk" in the cases of those "mothers who have uncontrollable temperaments, who are unhappy, who are unwilling to nurse their infants, who are hurried in the details of their life, who are irregular in their periods of rest and in their diet and exercise." Under these circumstances, how many mothers would be left to nurse their young?

The author is justly opposed to the use of condensed milk and patent foods. He considers, however, the only proper substitute to be modified milk, overlooking the fact that the expense—which he regards with haughty disdain—must, of necessity, place it beyond the reach of the

masses. He partially attempts to overcome this obstacle by giving directions for "home modification," which the reviewer thinks are only practicable with the wealthier and most intelligent classes—just where expense is usually not of great moment.

A very valuable chapter is that devoted to the rearing of premature infants—that class of human mites which are so regularly lost through indifference, ignorance, or carelessness. The author has invented for these little beings a new incubator, which he prefers to call a "brooder."

The author introduces chapters on "Leucocytosis" and "Oligocythemia," which will probably sound strange to the older class of practitioners who may have grown lethargic and behind the times. The author is very candid in describing certain diseases with which he has had no personal experience—such as Hemoglobinemias or Winckel's disease—to acknowledge the source whence they have been copied. We note that in describing the hemorrhages of the newly-born, the old name, "Melena," has been dropped.

The chapters on nervous diseases of infancy and childhood are thoroughly up-to-date and freely illustrated with photographs from original cases.

We cannot abstain from expressing surprise at the author's directions to take the temperature of children in the axilla instead of the rectum. He surely is aware that such records are extremely unreliable. Similarly are we disappointed in his advising the free use of the gum-lancet—that practically obsolete and septic instrument—in cases of presumed difficult dentition.

The chapter on diphtheria is in accordance with our most modern views of the disease. It might have been wiser to have omitted the illustration of follicular tonsillitis, which to the reviewer strongly suggested a frequent picture of diphtheria. In the treatment of this latter disease the author is justly opposed to "forced treatment," and believes that the method of

antitoxin injections to be the most promising. We note that the antiquated term "Croup" has been entirely omitted; but are disagreeably surprised to find the American method of laryngeal intubation still kept on the same level with tracheotomy, and dismissed after a bare mention.

In fairly criticising the work it must be stated that some parts are treated with extreme detail whereas others—of much greater importance—are scarcely touched on. Certain conditions, like "duodenal indigestion," are described, but we hardly think that the diagnostic acumen of the general practitioner will permit of such fine differentiations. In the treatment of tubercular peritonitis the author differs from some eminent pediatricists. He claims to have seen good results from laparotomy in such cases, especially when associated with ascites. Although not new in gynecology, we believe this to be new in the treatment of this condition in childhood.

In conclusion, we again congratulate the author on the monument which he has erected for himself in this book, and hope he will enjoy for many years the lofty position in the pediatric world which this valuable work assures him. A. B.

**OBSTETRICAL POCKET PHANTOM.** By Dr. K. SHIBATA, Specialist in Gynæcology and Obstetrics, Tokio, Japan, etc. Preface by Professor FRANZ VON WINCKEL. With Eight Illustrations, One Pelvis, and Two Jointed Manikins. Translated from the Third Edition by ADA HOWARD-AUDENRIED, M.D., Physician to the Children's Clinic at the Woman's Hospital, Philadelphia. Philadelphia: P. Blakiston, Son & Co., 1895. Pp. 21. (Price, \$1.)

This little toy-book of 20 pages, contains an obstetrical phantom made of paste-board, representing a miniature pelvis, and two manikins provided with movable heads and extremities. To the student this little book must be of great value in permitting him to imitate the mechanism of normal and abnormal labor. The reading matter is brief and to the point. The translator—a woman physician—has done her share of the work well.

**A HAND-BOOK OF OBSTETRIC NURSING** for Nurses, Students, and Mothers. Comprising the Course of Instruction in Obstetric Nursing given to the Pupils of the Training School for Nurses connected with the Woman's Hospital of Philadelphia. By ANNA M. FULLERTON, M.D., Clinical Professor of Gynæcology in the Woman's Medical College of Pennsylvania. Fourth Revised Edition. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1895. Pp. xiv-17 to 254. (Price, \$1.)

This little work has passed through three editions and stood the test of time. The authoress has an audience in view and limits her information within a fixed compass. Technical terms and difficult theoretical problems are excluded. In fact, the excessive simplicity of the book makes it rather hard reading for a professional reviewer. The book does not pretend to present anything which is really new to the medical man. It simply aims at bringing well-known facts in connection with the art of obstetric nursing within the comprehension of nurses and mothers. The language is well chosen and technicalities are usually avoided. In some portions a high literary style is exhibited, as when the authoress tells her nurses that "Tact is a magic wand by which human beings can accomplish miracles in the way of subduing the obstinate." A pleasant, sympathetic, conversational tone is maintained throughout the entire book. The work deserves its continuance of prosperity.

**THE YEAR-BOOK OF TREATMENT FOR 1896.** A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1896. Pp. viii-476. (Price, \$1.50.)

The Year-book, now in the twelfth year, long ago secured an audience in this country, which has constantly increased in numbers; it may be assumed that most of our readers possess the series, and have already received the '96 volume when they see this notice. We ourselves highly value this reference work, and no other



set of books is kept more readily available or is referred to oftener; to any student or writer of current medical literature who has not the European medical journals available or on file, the *Year-book* is indispensable. The twenty-five contributors are English men of mark, and each makes the review of progress in his specialty complete; the literature of the year is extracted, compressed, arranged, and practically presented in original essays.

An addition to the staff this year is Dr. Hale White, so well known in this country through his widely circulated text-book on *Materia Medica*; he contributes the chapter on "Diseases of the Stomach, Intestines, and Liver."

An interesting chapter for us is the "Summary of the Therapeutics of 1894-5," including references to New Remedies. The hypnotics, local remedies, iron agents and antipyretics are tersely brought in contrast, and the present status of these agents seems to be about the same abroad as here.

The list of new books (occupying 16 pages of fine print) is very valuable, and indicates how wonderfully prolific medical writers are in these days. The index is very complete, but not arranged in a manner usual or convenient according to our standard.

#### PAMPHLETS RECEIVED.

The Mercurials. By S. V. CLEVENGER, M.D., of Chicago. 36 pp. Reprint, 1896.

Where to send Invalids and Semi-invalids for the Winter. By SAMUEL S. WALLIAN, A.M., M.D. Reprint, 1896.

Speech on the Free Coinage of Silver at the Ratio 16 to 1; by Hon. CHARLES N. FOWLER, M.C., of New Jersey. Washington, 1896.

Formalin Catgut. By HUNTER ROBB, M.D. Reprint, 1896.

A Case of Multiple Myomata of the Uterus.—Ulcerated Varicose Veins of Left Leg.—Hysteromyomectomy.—Recovery. By HUNTER ROBB, M.D. Reprint, 1896.

Pruritus of the Genitalis. By HUNTER ROBB, M.D. Reprint, 1896.

LORETIN.—Herbert Snow, M. D., surgeon, London Cancer Hospital, says of Loretin, the new surgical powder: Dusted over the skin, or over a granulated wound, Loretin causes not the slightest irritation or unpleasant sensation. It immediately destroys the malodor of the most fetid cancerous sore, controlling this in a manner which no other agent I have yet tried will do. Copiously puffed with an insufflator into the deep cavity formed by evacuating the axilla of carcinomatous glands it efficiently precludes supuration, even when free hemorrhage has taken place after the closing of the wound, an occurrence almost inseparable from anesthetic vomiting, when the patient has been removed from the operating table. Not the slightest bad symptom from its employment in this way has so far been detected. When there is no deep cavity a wound dusted with Loretin heals rapidly by first intention.

CHRONIC ECZEMA.—The following is given in *Le Progres Medical*. It may also be employed in ichthyosis.

R Papain .....	3 ij
Acid salicylic.....	3 i
Glycerin	
Ol. ricini .....	ss 3 ss
M. ft. pomat.	

Apply with friction.—*Med. Herald*.

PERTUSSIS.—*Cocaine hydrochlorate*.—Drs. Wells and Carré have treated 323 cases of whooping cough, all as out-patients of the Hospital for Sick Children, with internal doses of *cocaine hydrochlorate*, and with the best results. They had previously taken into consideration its use locally as described by many observers. Although the experiments were conducted at the most unfavorable season of the year, only two cases were lost, both under six months of age, and in these the drug was only tried as a last resource when other remedies had failed. No ill effects from the alkaloid were observed in any instance. The dose with infants was commenced at  $\frac{1}{8}$  of a grain of the hydrochlorate three times a day; older children were given to commence  $\frac{1}{4}$  of a grain, gradually increased as the age or case required, basing the ratio on that of one grain for an adult. The average duration of the disease under cocaine treatment is about three weeks; in slight cases it may be a fortnight or less—indeed, it seems as if pertussis may be made to abort in many of the slighter cases if the patient is seen and treated early. Of course, severe and more obstinate cases do occur where the disease is somewhat more protracted, but if these numbers are compared with the usual course it will be seen that the drug has a very marked effect in lessening the duration, which is generally stated at from six weeks to two or three months. The child, as a rule, when taking cocaine, soon begins to show great improvement in its general condition; the sickness, when present, stops, the anorexia disappears, the becomes less frequent, the sleep at night improves, and restlessness vanishes, but the whooping, while diminished, may persist for a fortnight, when it usually stops, never to reappear.—*Lancet*, June 8th, 1895.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

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No. II.

## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATE.*

By SAMUEL S. WALLIAN, A.M., M.D.

(EIGHTH PAPER.)

In studying the physiological and pathological characteristics and influences of the various climates, on the human economy, bearing in mind the dearth of comprehensive and conclusive data at command, the first observed results on experiencing a *hot climate* may be thus briefly and approximately outlined:

1. The circulatory and respiratory systems are immediately but not permanently stimulated, the breathing and cardiac movements being accelerated.

2. The body temperature is definitely increased, the elevation amounting to as much as 1° Fahrenheit, and persisting for years, if not permanently.

3. The appetite is correspondingly increased.

4. The kidneys and sexual system are involved in the prevailing condition of excitation. Puberty in both sexes is inclined to precocity, the animal nature maturing at an early age in comparison with its development in colder climates.

5. There is a marked tendency to enlargement of the liver.

6. The individual loses weight and tends to become spare, notwithstanding the increase of appetite.

These results are doubtless in the direction of the law of natural selection, ac-

climation, or adaptation to the new environment. Some of them, as already intimated, are temporary, as, for example, the acceleration of the pulse and respiration. Others, as the increase of the body temperature, are permanent. This latter item is not unnatural, but could be rationally predicted since it has been found that the mouth temperature of natives of the torrid zone is uniformly from one-half to one degree above that of the inhabitants of the temperate zones.

It has, therefore, been assumed that the increase of body temperature noted in case of those who pass from a temperate to a torrid climate merely corroborates the theory of the universality of the law of evolution or adaptation, in as much as it has been observed that animals whose normal temperature is a certain degree higher than that of others are not subject to some diseases, due to micro-organisms, to which cooler blooded animals are liable. Pasteur proved by actual experiment that fowls, with a temperature norm several degrees above that of the dog, horse, rabbit, and other animals, are practically immune from anthrax: but if the body temperature of the fowl be temporarily lowered by artificial means, it can then be successfully inoculated with anthrax spores. Furthermore, infected fowls can be cured by artificially raising their body temperature to a degree at which the anthrax bacillus ceases to thrive and loses its virulence. On the other hand certain cold-blooded animals are not subject to tuberculosis, nor can it be induced in them except by artificially raising their body temperature to a degree compatible with the germination and multiplication of the tubercle bacillus.

This law of selection and adaptation is, however, necessarily of slow progress. Not in the life-time of an individual or generation, and frequently not in several generations does it mature its processes and complete its types.

Practically, in passing from a cool to a torrid climate the vital organism is subjected to a sudden strain, which often proves dangerous, in its effort at adaptation to the new requirements.

The normal size of the liver is greater in the natives of the torrid zone, and the hepatic disturbances which so commonly follow in consequence of migration thither by those accustomed to a cooler climate are evidence that nature is setting up a process of accommodation. The great mortality from "bilious" diseases, and those which have their origin and seat in the chylopoietic system, in case of those who suddenly change from a cool or cold to a torrid region, is thus rationally accounted for. The man who for the first time visits the tropics has "biliousness" and diseases of the digestive system as his preliminary and inevitable bane and bugbear.

It is questionable whether the severer of these manifestations are not due to previous debility or disease of the organs involved. The man with a normal liver, if observant of reasonable dietetic and hygienic precautions, ought to suffer little or no inconvenience from the change, and, in certain pathological conditions and temperamental peculiarities, is sometimes decidedly benefited or relieved.

It has been quite uniformly held that one of the constant and significant results of a change from the temperate zones to the tropics is a gradual decline in fertility, which in time becomes intensified into absolute sterility; but this time-worn assumption is now seriously questioned and by some authorities absolutely denied.

In view of the almost unanimous opinion of scientists and those who have given most attention to ethnic studies, that it is practically out of the question for the

Anglo-Saxon race to become thoroughly acclimated in the torrid regions, further generalizations concerning this climate would be superfluous. In short, the tropics do not afford conditions inviting to the majority of health seekers. There are cases and conditions in which tropic heat conjoined with tropic moisture, temporarily invoked, may work therapeutic wonders; but these cases are exceptional, and many of the effects may be artificially induced by a discriminating resort to *thermae* and other more readily obtainable means, which are more readily available and safer because more perfectly under control.

From the standpoint of the sanitarian and hygienist strictly *cold climates* need hardly be considered. The pathological conditions to which they are specially adapted being so very limited in range that to the clinician and therapist they present few points of interest.

The field of practical inquiry is, therefore, limited to the temperate zones, which of themselves present an almost infinite variety of climatic conditions, resulting from the numerous and complex influences already adverted to, in a general way, with more or less detail.

As between the northern and southern temperate regions, there can be no uncertainty as to which is most propitious for human habitation and development. In the language of Guyot:

"The Creator has placed the cradle of mankind in the midst of the continents of the North, so well designed by their forms, their structure and their climate to stimulate and hasten individual development, and that of human societies; and not at the centre of the tropical regions, whose balmy, but treacherous and enervating atmosphere would perhaps have lulled him to sleep the sleep of death in his very cradle."

Putting the comparisons in *juxta-position*, the man of the tropics is nature's specimen of the pampered son of affluence. He has no incentive to either physical or

intellectual exertion. His moral nature degenerates until it is scarcely more than rudimentary. His life lapses into a state of perpetual but insipid *dolce far niente*. He is a stranger to all the virile energies, and a slave to his sensuous impulses.

On the other hand, the man of the polar regions is Nature's slave and beggar, with no thought or even time for thought beyond the painful procurement of his barest daily necessities.

When we come to the man of the temperate regions, more especially of the northern temperate belt, we find one who, fortunately escaping the two extremes, is born to that energizing labor, that physical and intellectual stimulus without which there can be no complete development of the physical, intellectual and moral natures. His environment becomes his inspiration; all his faculties are appealed to, and every object and obstacle he encounters becomes an incentive. It is this man who has written all that is worth recording and remembering of the history of the human race.

But the climates of the northern temperate belt are far from being homogeneous. They are as numerous and as varied in character as would naturally follow from the countless contrasts in regional topography and other causative characteristics.

A brief study of the physiological and pathological significance of the more immediate factors which contribute toward the making, modifying and marring of climates is now in order.

*Atmospheric humidity*, both absolute and relative, has definite and quite important bearings, when we undertake to estimate the sanitary claims of any climate. When in excess it interferes with the normal performance of physiological functions, and modifies pathological processes to an extent that has never been fully realized, much as it has been discussed. In a humid atmosphere exhalation, both pulmonary and cutaneous, is markedly impelled, which lessens the elimination of toxic detritus through two

of the most efficient depurative channels, the skin and lungs. This compels and incites an increased functional activity on the part of the kidneys and other internal excretory organs.

Through their depressant effects upon the cutaneous and respiratory functions moist climates are noted for the prevalence of diseases characterized by retrograde metamorphosis and the ultimate breakdown or failure of some one or more of these persistently overburdened organs or functions. The "break-down" may present in the form of an impaired digestion, "neurasthenic dyspepsia," a "torpid liver," a "desquamative nephritis," or even tubercular degeneration, in one form or another.

These facts are now generally conceded, but not at all times sufficiently appreciated or recognized by climatic investigators. Statistics need not be cited to prove that in all excessively moist climates there is a noted prevalence of both acute and chronic maladies and physiological derangements which, whatever their names, are directly traceable to the constant interference with normal elimination of organic toxins through the cutaneous and pulmonary surfaces.

*Fogs* may be incidentally noticed, as being generally but not invariably associated with humid climates. The fogs of an excessively humid climate are essentially different from the local and transient sea-fogs which form over the ocean and penetrate some miles inland before they are dissipated. The latter species are met with in even very arid climates, and do not indicate an excess of humidity in the atmosphere. In a word, there are *soil fogs* and *cloud fogs*, and their effects are as different as their names. In fact, excessive soil moisture is often, if not always, more disastrous, from a sanitary and pathological standpoint, than excessive atmospheric humidity.

The late Dr. Bowditch, of Boston, who was an astute observer, in studying the causes of that national scourge, consump-

tion, found that excessive soil moisture was its most prolific cause. Excessive atmospheric humidity does not necessarily produce a soggy soil, but it inhibits evaporation, which if not impeded by an overlying stratum of saturated air would greatly assist in relieving the soil of its excess of moisture.

It is safe to say that no one factor has been so potent in originating and perpetuating a reputation for the various health resorts of the world as that of permeability of soil, and absence of excessive atmospheric humidity. The stock assertion in favor of any particular locality advocated as a "health resort" is that it possesses "a salubrious atmosphere and a porous soil," and by salubrious is meant, in most cases at least, a dry or moderately dry atmosphere.

*Dryness of the atmosphere*, when it becomes excessive, is a serious physiological drawback to the climate. It overstimulates the skin and irritates the mucous membranes. Furthermore, a preternaturally dry atmosphere is quite apt to be more or less permeated with either palpable or impalpable dust, which adds to its hurtful capabilities. And the more impalpable and more perfectly imperceptible this floating dust the more noxious it becomes, since it finds so much more ready access to the mucous surfaces of the respiratory tract. It is generally less contaminated with germs, whether pathogenic or otherwise, but it includes an unknown and ordinarily undetectable quantity of organic and mineral detritus, which is an ever-present menace to health.

*Air currents*, as relates to their prevalence, velocity and direction, constitute another positive and influential element in the general make-up of a climate. They virtually dominate the rainfall, and often become sources of severe trial to health by their irritating effect on sensitive nervous systems. In fact, no human organism is proof against the aggravating strain of frequent or constant high winds, and among invalids the death-rate always runs

high during the prevalence of a wind storm. The simoons of the desert, the cyclones of the valleys, and the "sand-storms" of the great plains, while they last, are more trying and fatal than either torrid heat or arctic cold. This is another item which is quite generally given too little weight in choosing a climate. The thermometry, barometry, and hygrometry,—all the scientific observations, never so accurately kept,—of a locality may be exceptionally favorable, and yet the prevailing winds may be so variable and tormenting as to render it quite undesirable as a place of residence, or for a temporary health-resort.

Again, there is the question of the character of the *water-supply* of any locality, for domestic and other uses.

No man can long successfully combat the untoward effects of unwholesome water, however robust, and no matter how salubrious other surrounding conditions may be. Water is Nature's universal solvent. It welcomes to its embrace every element, organic and inorganic. It is the medium of all animal and vegetable growth. It is the elixir of life, and the final alembic of death. It may even delight all the senses, taste, sight and smell, and yet be so saturated with invisible and insidious germ life, or so loaded with mineral compounds that it is utterly incompatible with a normal or permanent condition of health on the part of the user. So constantly and so lavishly is it used that when its quality is inherently and incurably bad in any given locality it is a drawback of such moment and magnitude as to negative all the other good qualities of any climate. Nature generously supplies it in unstinted abundance, and primarily of the greatest purity. But she immediately begins to contaminate it for the use of man by peopling and permeating it with her myriad other forms of life, or with solutions of her countless mineral elements. She is apparently no respecter of persons, but lavishes as much pains on a mollusk as on a man!

The essential question remains unsolved,—*What is climate?* It can not be accurately inferred from the records of the Weather Bureau; it is not latitude, nor altitude, nor temperature, nor topographic contour, nor proximity to bodies of water, prevailing winds, the result of ocean currents, nor of astronomical position. It is a comprehensive complex of all these, and so potent for good or ill is the favorable or unfavorable combination of these factors that contiguous climates may be in sharp contrast in many particulars, one being exceptionally delightful, the other, forbidding, ungenial and physiologically trying.

Nature's two prime tonics, antiseptics, germicides and restoratives are *pure air* and *sunshine*. In comparison all the products of the laboratory and all the lists of the pharmacopœia are rubbish and dross. It follows that the value of any climate to the hale man, or to the invalid, is in exact proportion to the opportunity and inducement it extends to him to avail himself of these potent agencies. Beside this crucial test the readings and indications of all the complicated meteorological instruments are scientific shoddy. Climatologists need a *comfortometer*.

Climate is unquestionably a controlling factor in establishing the death-rate of any community; but mortuary statistics are proverbially unreliable, since the records are so carelessly kept and so indiscriminately compiled. Official and compulsory records extending over long periods will be required to make these tables accurate, or even passably reliable guides. From those at hand some approximate inferences may, however, be deduced.

The average annual death-rate of the several European countries is thus stated:

France, one in thirty-two; Prussia, one in thirty-nine; Austria, one in forty; Norway and Sweden, one in forty-three; Denmark, one in forty-five; England, one in forty-six.

The average annual death-rate for the United States, based on less reliable data

than the foregoing, however, has been stated as follows:

Gulf states, one in sixty-three; other Southern states, one in seventy; Mississippi Valley and Atlantic states, one in eighty; Western States, one in eighty-one; Pacific states, one in one hundred and fifteen; and Northwestern states, one in one hundred and twenty.

Setting aside a wide margin on the score of incomplete and inaccurate data, and in the face of the fact that various European localities have acquired a world-wide reputation for healthfulness, it appears evident that the climatic conditions found in favored portions of our own country, as well as throughout the entire Union, are more conducive to health, enjoyment and longevity, than any found in Europe. But this assertion is applicable to the two countries as a whole, rather than to the claims of special localities or climates, a consideration of which is next in order.

Helix, California.

### A STUDY IN SYNTHETICAL CHEMISTRY.

By WILLIAM REDIN KIRK, Ph G., M.D.

By a correlation of facts and principles we deduct our conclusions; for knowledge is made up of many facts, infinitesimal and insignificant in themselves, but powerful and convincing when properly associated with each other.

There is a certain amount of satisfaction to a well trained mind in getting hold of a principle; it stimulates one to further study and deeper research. Too often, alas, in our busy professional lives we grasp a fact and let slip the principle. We sail serenely on, like a swan gracefully gliding over the placid waters of some lake, never dreaming of the depths below.

The proper study of any subject is not that so and so is so, but why is it so? We may not be able to answer, but if we always preface our studies by *why?* we will be rewarded in our investigations by many isolated facts, which in time will

arrange themselves into more intelligent groups, and often ultimately lead to the underlying principle. It was this inquisitiveness, first in the field of chemistry and later in medicine, which has led up to the subject of this paper. What may follow is advanced only as a theory which suggested itself after a comparison of the toxicity of drugs with their relative chemical composition. The theory may be too weak to stand the test of time, yet it leads one through a rather unique and pleasant field of thought, and crude as it may seem, it nevertheless bears upon a subject worthy of serious consideration.

In 1869 and 1870, Mendeleeff and Lothar Meyer independently called attention to the fact that if the elements be arranged in the order of their atomic masses, and then be divided into series of sevens, placing the elements of the second series immediately under the corresponding elements of the first, those of the third under those of the second, and so on, it will be found that, calling the elements in each vertical column a group, each of these groups corresponds to a natural family of elements, having common properties, varying in degree throughout the group. Since a phenomenon is called periodic when it recurs at definite intervals while the circumstances upon which it is conditioned vary continuously, it is evident that the properties of the elements which recur thus definitely as the atomic mass steadily increases must have a periodic dependence upon this atomic mass. Hence the law: *The properties of the elements are periodic functions of the atomic masses.*

In the table which follows, the elements are arranged substantially according to Mendeleeff's classification, a horizontal row indicating a series, and a vertical one, a group. The elemental properties which are thus periodic include all the properties of the elements so far as known, both physical and chemical. Their hardness, malleability, and ductility; their density and consequent atomic volume; their crys-

Series	Group I. $R_2O$	Group II. $RO$	Group III. $R_2O_3$	Group IV. $RH_4$ $RO_2$	Group V. $RH_5$ $R_2O_5$	Group VI. $RH_6$ $RO_3$	Group VII. $RH$ $RO_2$	Group VIII. $RO_4$
1	H = 1	Be = 9.1	B = 10.9	C = 12	N = 14.	O = 16	F = 19	—
2	Li = 7	Mg. = 23.9	Al = 27	Si = 28	P = 31	S = 32	Cl = 35.4	—
3	Na = 23	Ca = 40	Sc = 44	Ti = 48	V = 51.2	Cr = 52.4	Mm. = 55	{ Fe = 56, Ni = 58.5 Co = 58.7, Cu = 63.4
4	K = 39	Zn = 64.9	Ga = 69.9	Ge = 73.3	As = 75	Se = 79	Br. = 80	{ Ru = 101.5, Ro = 104 Pd = 106.2, Ag = 107.6
5	(Cu) = 63.4	Sr = 87.3	Y = 89.6	Zr = 90.4	Cb = 93.7	Mo = 95.9	— = 100	—
6	Rb = 85.2	Cd = 111.7	In. = 113.4	Sn. = 117.8	Sb = 119.6	Te = 125	I = 126.5	—
7	(Ag) = 107.6	Ba = 137	La = 138.5	Ce = 141.2	Di = 142.1	—	—	—
8	Cs = 132.7	—	—	—	—	—	—	—
9	(—)	—	Yb = 172.6	—	Ta = 182.	W = 184	—	{ Os = 191, Ir = 192.5 Pt = 194.3, Au = 196.7
10	—	Hg = 199.8	Tl = 203.7	Pb. = 206.4	Bi = 207.3	—	—	—
11	(Au) = 196.7	—	—	Th = 232.4	—	U = 239.8	—	—
12	—	—	—	—	—	—	—	—

talline form, etc., all bear a certain relationship to their atomic weight. The strongest evidence of the truth of a law of nature is its power to predict. In the periodicity table certain gaps will be noticed to which no known element belongs. Mendeleeff undertook to predict the properties of some of these undiscovered elements, basing his predictions on the periodic law.

Following along the line of thought indicated by them it occurred to me that not only could the physical and chemical properties be explained in that manner, but also the physiological effect of drugs, especially the less complex ones contained in our armamentarium. For illustration take the various combinations of the halogen group with the basylous elements sodium and potassium. All through the series the combinations of chlorine, bromine and iodine with potassium are more toxic and cannot be borne by the system as well for any length of time as can the same compounds of these agents with sodium. Sodium, as will be observed by the table, has an atomic weight of 23, while potassium's atomic weight is 39. In the same group is found silver (107.6), and gold (196.7), combining with chlorine. With silver chlorine forms an inert compound; with gold an alterative of value. The advocates of strontium bromide claim it has greater potency than potassium or sodium bromide, and we find the atomic weight of strontium to be 87.3. The various compounds of manganese (55), iron (56), nickel (58.5), cobalt (58.7), and copper (63.4) bear out the same fact that there is an increase of toxicity with an increase of the atomic weight. Nitrate of silver is a powerful caustic; we cannot compare it in this case with gold, as there is no nitrate of gold. And the nitrate of silver in all probability owes its properties more to nitric acid than to the base.

Other examples might be cited were it necessary to prove this conclusion. A close study into the chemical and physical properties of elements that group themselves together in a distinctive class, will bear out this law, and a closer study into the elements that have a similar physiological effect will also prove that the greater the toxicity the greater will be the atomic weight, when this element is compared to other elements of the same group combined with the same acid radical.

The atomic weight of the acid radical is not included in these remarks, nor is

the sum of the weights of the acid and basylous atoms which combine to form the molecule. The law applies to the basylous elements and only those that are grouped together because of similar physiological properties. The inorganic chemical agents used in medicine have been arranged in groups according to a similarity in effect upon the system, as the free elements have been grouped because of similar physical and chemical properties, and it would be as unfair to apply the law and expect it to cover all cases in the one class as in the other. It will be noticed in some groups of elements, that instead of the toxicity apparently increasing with the atomic weight, it increases as the atomic weight grows less. For instance, chlorine 35.4, bromine 80, iodine 126.5. Chlorine is the most irritating to bronchial mucous membrane. But it does not follow that this proves an exception, for it can be explained upon purely physical grounds for chlorine is a gas and more diffusible, while bromine is a liquid and iodine a solid. All three can be converted in a similar physical state (the gaseous) by different degrees of heat, and in a similar physical state it will be found that bromine is even more irritating than chlorine. However, admitting that the fact is true that chlorine with the smallest atomic mass is the most potent, it does not effect our law, for, as stated before, the law applies only to basylous radicals, and this group of elements act as acid radicals in their binary compounds.

There is also a corresponding increase not only in the physical and chemical activity, but also in the physiological effect of the acids from hypo-acids to per-acid as the amount of oxygen atoms increase. This fact is worthy of note because the more oxygen atoms there are in a compound molecule formed by an acid, the greater will be the molecular weight. While this fact is not a direct proof of our theory, it must at least be admitted as corroborative evidence.

Of course, there will be exceptions to



this law, as there are exceptions to all laws; but as exceptions prove the rule, and as the preponderance of evidence is on the side of our conclusions, the exceptions will serve to strengthen the theory.

#### SUMMARY:

Basylous elements having similar physiological effects combined with the same acid radical, will show an increase in activity as there is a corresponding increase of atomic weight of the basylous element.

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Louisville, Ky. \_\_\_\_\_

### ON IRRITATION IN THE TREATMENT OF DISEASES OF THE NASAL CHAMBERS.

By JOHN E. BACON, M.D.

Experience has taught the writer that the rational treatment of diseases of the nasal chambers must take into account the ready response to all forms of irritation which is a marked property of the nasal mucous membrane, and while this property may be made use of in the management of certain forms of nasal disease, it forms a barrier to too energetic measures which are often directed against other forms of disease, and which, if persisted in, will do more harm than good.

On introducing into the nasal passage a probe or other solid body, or certain drugs, a sense of smarting with lachrymation is at once excited, and if it be left for the space of a minute or more a profuse mucous flow will be observed. This is Nature's effort to rid the cavity of a foreign body which *irritates*. If one takes the trouble to look it will be seen that the same smarting and flow follows the use of a vast majority of all substances which are in common use in the treatment of nearly all forms of nasal trouble.

The condition met with must indicate

the plan of treatment with reference to this condition of irritation. Thus, treatment in cases in which the secretion of the glands of the membrane is deficient, in those cases characterized by dryness of the throat and nasal passages, and in those in which large crusts of dried altered secretion form, demands a certain amount of irritation which by stimulation of inactive glands will do good and tend to restore the normal secretion of the part; but even here it must be borne in mind that too much or too frequent irritation will result in an *over-stimulation* of the gland cells and do harm. It is a point of great nicety to gauge exactly the amount of stimulation which a given case will require, and must be determined or at least approximated by a careful study of each case. The cases which will present the above named symptoms are those in which the atrophic process has begun, and may be roughly grouped as cases of chronic atrophic rhinitis, though it must not be overlooked that some cases in which large crusts are found may be the subjects of sinus disease as well.

It may be remarked in passing, that the solution made by dissolving the tablets sold as Seiler's in water, finds its only indication in atrophic rhinitis or in diseases of the mouth or throat. It is too irritating to be used in the normal nose or in cases attended with hypertrophy. The profuse flow of mucus which follows its use in either of the latter conditions, and which often will persist for an hour, is good evidence of the fact. And yet there are hundreds of physicians who always prescribe this solution whatever may be the actual disease, in every case attended with trouble with the nose.

Again, the preparation made by dissolving iodine and potassium iodide in glycerine, which has become so well known in the last few years, may be used with advantage in any case requiring stimulation, but is often used indiscriminately without regard to the actual seat of trouble, and is often responsible for grave aggravation of slight changes. The normal nose is

most intolerant of this remedy, as any one may determine for himself by applying a little to his own nasal membrane, and it is badly borne in hypertrophic cases, and in the practice of the writer has never yielded any encouraging results in such cases. Hypertrophic rhinitis will improve slightly under the routine treatment, adopted in many dispensaries, by this agent, but it has always appeared to the writer that the improvement was due to the preliminary cleansing with mild alkaline sprays and to the better care of the nose, rather than to the remedy in question. Here again the field of a much used remedy is really limited to those cases in which stimulation and an alterative action is to be desired, atrophy.

Hypertrophy in the nasal cavities is very generally the *result* of irritation, and surely the congestion and intense glandular activity excited by the use of this powerful irritant cannot be favorable to the reduction of the overgrown tissue. The only rational treatment for hypertrophy is reduction by some destructive agent, such as the galvano-cautery or chromic acid, or what is preferable to all other means, excision of the offending mass by appropriate surgical measures.

The after-treatment of surgical wounds within the nose must be conducted with a strict regard for needless irritation in order to secure the best results. Wounds in this region ordinarily heal nicely within ten to fourteen days if left alone, but those which are forcibly sprayed with a coarse spray under a pressure of twenty-five or thirty pounds will not heal so kindly, and in some cases, especially those in which the weak solution of silver nitrate has been applied to the raw surface, a rapid proliferative process will be started which will soon replace all the tissue removed, and in some cases add more. This applies particularly to thickenings of the septum.

For the purpose of cleansing, the writer has been in the habit of using warm Dobell's solution of one half the ordinary

strength, which does not irritate to a marked degree. This is used preferably with the post-nasal syringe, since the gentle stream coming from behind forward washes out easily many offending materials which a spray would leave in place. When the spray is used it is with a pressure of from ten to fourteen pounds.

Apart from the fluids used about the nose for this purpose, the less used the better, for too constant spraying or syringing will surely cause a sodden, water-soaked condition of the nasal membranes and favor the formation of polypi.

It should be remembered that all treatment directed to the turbinals, whether by spray, mop, powder, or oil, is lost when the real focus of disease is in the antrum or other sinus, and therefore it follows that before treatment is considered at all, a diagnosis is imperative.

The writer will long remember his first and only attempt to apply the broad principles of antiseptic surgery to the sinuses of the nasal cavity. A feature of it was the syringing out of an antrum, which was the seat of an empyema, with a 1 to 10,000 solution of bichloride of mercury, and the resulting acute inflammation which aggravated all the symptoms and troubles of the patient, and served to delay the final cure of the case for months. Since then the fluids used by the writer for cleansing these cases has been that which could be applied to the healthy eye with comfort, a five per cent. solution of boric acid in sterilized water, and the results since obtained have been brilliant in direct proportion to lack of needless irritation.

That cocaine is an agent which is used too frequently in nose and throat work is no longer a matter of doubt. That it is also a very intense irritant is also proved to the satisfaction of many of the best observers in this field. To determine this point the writer has been observing the behavior of wounds and abrasions within the nasal cavity with and without the drug. The conclusion is reached that in

four per cent. solution, and to a greater extent in stronger solutions, it retards healing and favors sloughing. A healthy young man was operated upon for great thickening of the nasal septum, masses were taken from each side, and on one side with a daily dressing, which consisted in gently cleansing with  $\frac{1}{2}$  strength Dobbell's solution and a light dusting of aristol, the wound healed solidly in eleven days. On the other side a similar operation left practically a similar wound, this was dressed daily by first spraying with a four per cent. solution of cocaine and afterward proceeding as before; on this side the healing was not complete until nearly four weeks had elapsed. Cocaine, by its paralyzing action upon the cell and upon the trophic nerve supply, as well as its action in depleting the part only to be followed by a more intense congestion as soon as the effect passes away, must affect the nutrition of the cell and interfere with nature's process of repair.

There is no part of the body in which irritation is capable of doing more harm in direct proportion to its severity than the nose, and there is no part of the body in which more brilliant results may be obtained from judicious treatment if the operator has regard to the amount of irritation he is producing by his operative and therapeutic measures.

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FATALITIES, IN GREAT BRITAIN IN 1895, UNDER CHLOROFORM.—The *Medical Press and Circular* states that 61 deaths occurred within the past year in the United Kingdom, of which 52 were from the administration of chloroform. This would be a fearful indictment against the use of that anesthetic, if we only knew what was the relative proportion of patients submitted to its influence and to the influence of other anesthetics. In other words, if the number of chloroform cases were fifty-two times the number of nitrous oxide cases, chloroform would be no more dangerous, although it might have caused 52 deaths for one death caused by the latter anesthetic.

## CHOCOLATE THERAPEUTICALLY CONSIDERED.

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A natural product, long known commercially, containing much nutriment and a valuable alkaloid, of agreeable taste and capable of disguising many unpleasant drugs—with all these items in its favor, it is remarkable that chocolate is mentioned in the Pharmacopoeia only as a source of the raw material for making suppositories. It is the object of this article to call attention to the various ways in which chocolate and its derivatives may be employed by the therapist, and to urge its adoption as a standard article of the Pharmacopoeia.

The following table, based on Mitscherlich's analysis of the chocolate or cacao bean, affords a bird's-eye-view, so to speak, of its availability.

	Per cent.
Nutritive	Fixed oil (oleum theobromae, .. mainly stearin) ..... 45 to 49
	Starch ..... 14 to 18
	Glucose } Carbo- ..... .34
	Cane sugar } ..... .26
	Albuminoid matter ..... 13 to 18.8
	Theobromine (Alkaloid) ..... 1.2 to 1.5
Waste	Cellulose . . . . . 5.8
	Water ..... 5.6 to 6.
	Ash ..... 3.5
	Coloring matter ..... 3.5 to 5.

We may, therefore, sum up the virtues of chocolate by saying that three-fourths of its weight is simply nutritive, one per cent. or more medicinal, and rather less than one-fourth waste, including, however, nothing absolutely harmful while the water and ash are inevitable and, in a sense, nutritive constituents of all foods. In reality, few natural products are so free from objectionable substances and so rich in nutriment in agreeable form as chocolate.

Chocolate belongs to a class of vegetable products midway between foods and drugs, largely employed as mild stimulants or sedatives and usually taken in the

form of beverages. The dependence which many persons place on these substances and the modification of their effects according as the system becomes accustomed to their action, are analogous to phenomena observed in connection with morphine and other narcotics. It must be recognized, however, that a difference of degree exists so important as to constitute a difference of kind. Tea, coffee, guarana, maté, kola, all of which contain caffeine as the chief active principle, provide a large part of the world with practically the same stimulating and comforting beverage. Chocolate, with a somewhat different alkaloid, supplies the middle portion of the western continent; while to North America is due tobacco, the most popular of the semi-medicinal plants on which the gentler vices depend and which is almost the only one not commonly used as a beverage. In the mountainous regions of South America, coca is indigenous, the most medicinal and, therefore, the most harmful of this class. Of this group, chocolate is the only member which has any appreciable nutritive value, the agreeable sense of strength caused by the others being entirely fictitious. Chocolate is also free from tannic acid, which does such enormous harm to the stomach in the case of tea-drinkers, and its alkaloid, theobromine, fulfills more closely than any other the lay ideal of a medicine that shall be powerful for good without also being powerful for harm.

A food that contains a medicinally active principle is, nevertheless, not one to be taken without restriction. The nutritive use of chocolate should be limited to those instances in which the mild stimulation of the alkaloid is allowable or even desirable. The writer has long been accustomed to use the ordinary sweet chocolate as a lunch when night work or the fatigue of an unusual amount of day work fulfilled this indication. Not only is chocolate adapted to the relief of mental fatigue, but it is an excellent and portable

food for prolonged bicycle rides, walks, etc., when the system needs nourishment of easy and quite rapid digestibility and when the blood supply of the stomach is lessened by the demands of other organs. So-called dry bread contains about 50 per cent. of water, 6 per cent. of proteids, 35 per cent. of carbohydrates and a minute quantity of fats in addition to salts and waste. An ordinary roll weighs about two ounces. Thus, an ounce bar of sweet chocolate is rather more than the equivalent of a light lunch consisting of a roll with butter and a cupful of well sweetened coffee, minus the tannic acid. Besides its obvious convenience as an emergency lunch for soldiers and travelers, who need extremely portable and imperishable food-stuffs, chocolate is often valuable as a food for the sick. Many persons feel the need of some warm beverage at meals, who are injured by the tannic acid of tea and coffee, and who have a very excusable antipathy to the burned cereal substitutes for the latter. In such cases, some one of the many preparations of chocolate may be available, though this is a substance for which there is usually a strong liking or an equally marked aversion. For poor patients, the cocoa chips afford a cheap and agreeable beverage though without much nutritive value.

The vegetable fat of chocolate consists largely of stearin; it does not readily become rancid, and this fact, with its consistence, makes it serviceable in the preparation of suppositories. Considered as a food, it is quite easily digested. Chocolate is, therefore, to be considered along with crisp salt pork, cream and other pleasant substitutes for cod-liver oil, in the fattening of lean but healthy persons and in the nutrition of wasting diseases. Many brands of chocolate are advertised as free from indigestible fatty matters, and the attention of consumers is called to the fact that a delicate stomach cannot digest fats. Considering the well-established but not sufficiently appreciated physiological fact, that even a normal stomach

does not digest fats, the significance of the claim is lost. As a matter of fact, the fermenting of fats and carbohydrates in the stomach does not necessarily call for abstinence from such foods, but rather for the regulation of albuminoid digestion and the securing of gastric asepsis. The conditions in which fats are not assimilated are practically limited to diseases of the pancreas and of the biliary apparatus.

In cases of dilatation of the stomach, even with malignant disease, in which the digestive powers have been so low as to require rectal alimentation, and when it has been necessary to return to the administration of food by the stomach, the writer has successfully used a diet composed of thin sandwiches of dry bread and raw pancreas and of chocolate candy. The latter must be absolutely pure and is best made at home, of confectioner's sugar coated with melted bitter chocolate. It can not be inferred that chocolate candy is the ideal diet for all cases of marked digestive failure, but it is one of many that may well be considered with due allowances for the tastes of the patient and the exact nature of the trouble.

The choice among the numerous brands of chocolate on the market, is an embarrassing but a very necessary matter. A celebrated English make may be "grateful and comforting" but it is lacking in strong chocolate flavor and is too suggestive of mucilaginous vegetable preparations like arrow-root. Still, it seems to be nourishing, and many persons like it. The ground cocoas must be regarded with suspicion, as they are apt to be adulterated with licorice and other finely ground vegetable material. Huyler's and Baker's seem to be pure and do not cause unpleasant gastric reflexes, while they are well flavored. Several brands of cocoas are advertised as economical, not from the cost per pound but from the fact that they are much more concentrated than the ordinary forms. Personal experience has not verified this claim with regard to any brands tested. One form of Dutch

cocoa, sent to the writer as a superior article, proved to be almost tasteless, though of rich chocolate color. Phillip's digestible cocoa has an excellent flavor, and seems to be pure. It is expensive, and tests with a patient with dilatation of the stomach did not show that it was digested in the stomach or passed on to the bowel in a shorter time than chocolate for which no claim of digestibility was made. Considering price, flavor, apparent purity and freedom from liability to produce gastric disturbances, including reflex head-aches, the writer has settled on Baker's cake chocolate and the corresponding German sweet chocolate. Some of the imitations of these cake chocolates, both bitter and sweet, are abominable. The writer expresses such a preference with considerable hesitation, as injustice may be done to some untried brand. It is fair to state, also, that he is absolutely disinterested and under no obligation whatever to the Baker or German companies.

Chocolate is one of the best vehicles for disguising the taste of quinine—being far superior to licorice or yerba santa—the astringent salts of iron and many other bitter drugs. Considering that syrup of chocolate is prepared from the powder at almost every soda water fountain in the country, we need not wait for the introduction of an officinal syrup or confection before availing ourselves of this means of flavoring liquid prescriptions and disagreeable powders and extracts. Chocolate trochees containing tannate of quinine have been on the market for several years.

Thur far, only the nutritive and esthetic uses of chocolate have been considered. The discussion of its medicinal possibilities leads to the study of three closely related organic chemicals: xanthine, a comparatively insignificant product of nitrogenous metabolism in the body; di-methyl-xanthine, or theobromine, found in chocolate and kola; and tri-methyl-xanthine, or caffeine, found in tea, coffee, maté, guarana and also kola. *Di-methyl xan-*

*thine* is not described, so far as the writer is aware, and one or two chemists intimate that it is a chemical impossibility. If this statement is incorrect, it is due rather to the difficulty of obtaining definite and explicit information on the subject than to any lack of study. *Xanthine* is said by Bouchard to be practically lacking in physiological activity. He is certain that it is not *the* toxic substance of the urine, though eliminated by it. Still, it would probably be too broad a statement to say that this or any other waste product of the body is absolutely inert. It is true, generally, that the addition of methyl to a compound, gives it analgesic properties and makes it more depressing to the nervous system and the circulation, though a primary stimulation may occur. A comparison of acetanilid with methyl-acetanilid, exalgin, has been made in an earlier paper of this series. *Caffeine* is well known to raise blood-pressure and to stimulate the heart for a time and then to have precisely the opposite action, as is seen in the palpitating heart and trembling pulse of a coffee fiend. The corresponding primary stimulation and subsequent depression of the brain is also conspicuous even to the layman. The diuretic action of caffeine is due both to the rise of blood-pressure and to a direct stimulation of the renal cells. If we may be pardoned in an inelegant but expressive Americanism, theobromine is like caffeine but not so much so, except that it is more directly stimulant to the renal epithelium. In detail, theobromine is five or six times less toxic than caffeine; it has practically no effect on the vaso-motor system and does not affect blood-pressure except by depression when given in large doses; it does not produce so much wakefulness as caffeine but merely a mild stimulation of the intellectual faculties, with vague subsequent depression after considerable doses or a rather prolonged use of the drug; palpitation of the heart is almost never noticed, yet diuresis is considerably increased, in the absence of a

mechanical cause in the elevation of blood-pressure. In fact, the only conspicuous effect of a moderate use of chocolate is a slight mental stimulation. As theobromine is even more insoluble than caffeine, Gram has proposed a compound of the salicylates of sodium and theobromine, which unites the diuretic powers of these two substances, and which has become well known under the title *diuretin*. This substance is readily soluble, and, except for a somewhat bitter taste, unirritating. The writer need not add his mite of experience with this drug to the full reports already published. It is alluded to, in this connection, merely to emphasize our debt to the chocolate plant.

Like every other drug having a positive effect on the central nervous system, theobromine may induce a habit. This is said to leave the patient in the same miserable condition to which victims of coffee descend, with sallow skin, palpitating heart, nausea, and loss of self-control. The writer has had no experience with this habit, unless a personal fondness for chocolate and a realization that it stimulates cerebration may be so termed.

Oleum theobromæ, commonly known as cocoa-nut oil butter,—it will be observed that the similarity of the words cacao, cocoa, and coca is entirely accidental and without botanical or therapeutic foundation—is a yellowish vegetable fat of the odor of chocolate and the consistence of paraffine. It is useful not only in the manufacture of suppositories but as an emollient for chapped hands and lips, excoriated nasal margins occurring in the course of coryza, the dry and scaly skin of the eruptive fevers, etc. Oleum theobromæ deserves to become more popular as a toilet article and as a basis for stiff ointments, and also, perhaps, as a means of administering fatty nutriment byunction.

A syrup and a simple confection of chocolate should be officina! as vehicles for liquid and solid drugs, respectively. Theobromine, some soluble salt of the

alkaloid, as well as diuretin and analogous compounds of lithium and potassium should be standard on account of their marked diuretic action in dropsy, gout, lithemia, etc. The oil is already officinal and deserves a wider use. For nutrition and supplying agreeable beverages, we do not need officinal preparations; but should bear in mind the commercial ones already on the market.

174 Franklin St., Buffalo, N. Y.

### AN IDEAL ANTISEPTIC.

By Dr. J. D. ALBRIGHT.

In the great realm of surgery and surgical conditions, the one thing necessary to the successful issue, is antiseptics, or perhaps more properly, asepsis. For the securing of this condition, hundreds of preparations have been offered to the medical profession, all of which, in a measure have been of value, but almost all have also had some objectionable features.

What constitutes a perfect antiseptic?

1. It must render the parts, perfectly and surgically clean, and do it quickly.

2. It must be safe, yes, more than safe—it must be harmless.

3. It must be non-corrosive, so as to be alike applicable to instruments and hands of the operator, and also to the patient, before the operation.

4. It must be soluble in water, and make a clear solution, so as to enable the operator, or his assistants, to see the desired instrument at a glance.

5. It ought to be cheap, so as to avoid all possibility of restricting its use.

6. It must not have a disagreeable odor.

What antiseptics correspond to these requirements?

Bichloride of mercury is poisonous, it is corrosive, it coagulates the albumen on the surface too quickly, thus preventing thorough penetration, and is not freely soluble in water.

Carbolic acid is not free from toxic ef-

fect, and needs an addition of glycerine to render it freely soluble in water.

Iodoform has caused poisoning, is possessed of a disagreeable odor, is not soluble in water, and is not adapted to the sterilization of instruments.

I have lately been using lysol, and find in it the most superior article for an all around antiseptic that has ever been brought to my notice. It corresponds in every particular to the fore-going requirements, and deserves a place in the medicine chest of every practitioner of the healing art. I will cite a few cases to demonstrate its value.

Case I.—Incised wound of scalp, three inches in length, exposing the skull to view, caused by fall from hammock. I carefully removed the matted hair and shaved the surrounding parts, then thoroughly cleansed the parts with a two per cent. solution of lysol, and inserted a few stitches, which were removed in two days, not the slightest trace of pus being discernible throughout the case, the wound healing both rapidly and without any unfavorable symptoms.

Case II.—A fatty tumor was removed from the inferior maxillary region of a gentleman aged 50. Lysol was used in two per cent. solution throughout the operation, sponges being saturated with it, instruments immersed in it, as also my hands. After the oozing had ceased, after the removal of the tumor, a five per cent. solution was used for a final swabbing of the wound prior to closing. The recovery was uninterrupted and more rapid than any I have yet seen.

Case III.—Woman with watery ulcer on calf of leg, had been treated by the usual remedies without benefit. I at this stage determined upon heroic measures, and with a camel hair brush applied lysol in full strength to the entire surface of the ulcer. It caused some smarting, but it did the work. I dressed it lightly with absorbent cotton, and was informed afterward that it had healed completely in the course of 21 days.

I have applied it in full strength to a severe steam scald, where the skin remained intact, with the result of almost immediately and entirely relieving the pain.

In leucorrhea and as a douche after labor I have found it excellent. It is in my opinion one of, if not *the best* all around antiseptics that is at present before the medical profession.

Akron, Pa.

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## Recent Medicaments.

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JODOPHEN and NOSOPHEN are proprietary synonyms for tetraiodophenolphthalein, a new substitute for iodoform.

XERIFORM is the newly trade-marked name for tribromphenol-bismuth, a product already in use and favorably reported on. The allied compound beta-naphthol-bismuth has also been supplied with a utility name, *orphol*.

EUCASIN is a new medicinal food, a compound of casein with phosphate sodium, nutritious, readily assimilated, and without disturbing effect on the bowels; it is to be taken in soup, chocolate, etc., but not in alcoholic beverages.

SALHYPNON, or benzoylmethyl-salicylic-acid-ester, introduced by Dr. A. Voswinkel, occurs in long, colorless needles, insoluble in water. The *Pharmac. Centralh.* says, the tests have not demonstrated any notable physiological effects; it has some effect on bacteria, but not equal to sal-acetol and other similar agents.

A SUBSTITUTE FOR TRAUMATICIN can be prepared, according to J. Ducommun (*Schweis. Wochenschr.*), by mixing an aqueous solution of castile soap with an alum solution; the resulting viscid mass is stirred with warm water and dissolved in ether. The product is an oleate aluminium, and is suitable as substitute for traumaticin.

EUCAINE is a new substitute for cocaine as local anesthetic; the hydrochlorate has the chemical formula,  $C_{11}H_{11}NO_4HCl$ . It is used hypodermatically in 6 to 15 per cent. solutions, and is much less toxic; the effect is said to last longer than with cocaine; the solutions remain clear and are permanent. Good reports have been published in German dental journals.

SCOPOLAMINE HYDROBROMIDE (the new German official name for hyoscine hydrobromide) is said to be a true hypnotic, especially for treatment of the insane. Olterogge and Jurman, Russian physicians, report their experience in the *Medical Week*; they administer the drug hypodermically in doses of .003 to .015 of a grain, achieving three to ten hours sleep, with calm and refreshed awakening.

FERRATIN-ARSENIC pastilles are recommended by Dr. Rosner (*Pharm. Centralh.*). Powdered chocolate is mixed into a paste with liq. potass. arsenic., dried and pulverized; then ferratin is added, and the mixture compressed into tablets and coated with chocolate. The proportions can be regulated by the prescriber, and the tablets extemporaneously prepared by any pharmacist. The tablets yield excellent results in anemic conditions.

THIOL FOR BURNS.—Dr. Nageotte-Wilbuschewicz, in *Therap. Wochenschr.*, No. 3, 1896, describes a rational local treatment of burns as follows: The wound must first be cleansed, or made aseptic, with either carbolic acid, boric solution, sublimate, ether, etc., applying chloroform if pain is unbearable; then apply antiseptic dressing to guard against infection. Thiol yielded most excellent results, applied after the preliminary cleansing, and covered with cotton. Author prefers thiol to ichthyol, because it causes only very slight and fleeting pain while ichthyol produces acute burning sensation; in addition ichthyol has a strong petroleum odor, while thiol has only a faint and rather agreeable odor. The influence of thiol is pronounced; it forms a varnish like coating, protecting the skin and promoting quick healing.



# THE AMERICAN THERAPIST.

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## Editorial.

### AN AVERAGE NUMBER.

There are several very interesting articles in this issue, worth careful perusal, and full of practical suggestions. Dr. WALLIAN, whose series of papers on Climate have formed a distinct feature of the current volume, has reached the point of applying his theories and facts to a direct bearing on health and disease, and his graceful diction and multitudinous ideas make attractive and profitable reading. The next paper in this series will touch upon European and other foreign climatic resorts, and the tenth paper will conclude the series with American Special Climates. We will then publish the whole series in book form.

Dr. KIRK, a new contributor, from whom we expect to secure many thoughtful and instructive contributions in future, presents a novel theory of systematic toxicity of synthetical chemicals; we believe this communication will attract attention and perhaps lead to a fruitful discussion—possibly to establish the nature of the untoward effects which frequently puzzle clinicians in the use of new remedies, and which are now vaguely ascribed to “idiosyncrasies.”

The numerous contributions during the past year of Dr. BACON, on diseases of the nose, throat and ear, have demonstrated

his ability to give authoritative advice; his present paper on irritation caused by improper treatment of diseases of the nasal chambers and the consequent harm and delay, is a practical lecture from which our readers will undoubtedly extract some good points for use in daily practice.

Dr. BENEDICT, a prolific writer for the medical press, takes up chocolate this month in his series of therapeutic studies; it is apparently a simple subject, but the author makes it important by the wide range of study incorporated in his paper, and we are sure that the reader will read the article attentively and be prompted to make more extended use of chocolate in future.

We are also pleased to publish the paper on lysol—short though it be; we believe that lysol is the safest and most satisfactory substitute for carbolic acid, and for other antiseptics, and our faith is based on long and satisfactory experience with this agent.

The paragraphs grouped under “Current Literature” are compiled by a new member of our staff, Dr. R. M. WYCKOFF; our book notices emanate from various contributors, and the number is “made-up” by the editorial assistant who has performed this service from the first issue.

There is nothing special about this issue of the AMERICAN THERAPIST; it is simply an average number, such as we aim to furnish every month. We have thought it advisable to review the contents for once, to point out that many hands and minds are concerned in the compilation of each issue of the journal, and that an intelligent purpose guides us in producing an original, practical and above-the-average journal.

We seek recognition for our effort, and will find it satisfactorily in a constantly increasing list of subscribers—which, in turn, will prompt us to renewed and enlarged efforts, “to give all that the support warrants.”

## Current Literature.

**PICRIC ACID FOR BURNS.**—The *Medical Press and Circular* contains the following item: "It is stated that at the Hopital de la Charité in Paris the usual treatment of burns have been superseded by the use of picric acid as a lotion, in aqueous solution of about 5 grammes to the ounce. Its virtues are said to have been accidentally discovered by a medical student, and that the application not only affords immediate relief from pain but hastens the healing very much."

**FURUNCULOSIS TREATED BY CAMPHORATED SALOL.**—Dr. Bowen has written to the *Boston Medical and Surgical Journal* regarding his favorable experience in the treatment of boils and carbuncles with a preparation made by moistening one part of camphor with a few drops of alcohol, and rubbing in a mortar with one-fourth part of salol, till a transparent fluid is obtained, which he calls camphorated salol. A change takes place in from twelve to twenty-four hours; pain diminishes, and the tumor becomes progressively smaller, without the formation of pus. The part is covered with cotton soaked in the remedy, with an impenetrable covering outside.

**ON THE REMEDIAL DOSAGE OF THE SULPHATE OF MORPHINE.**—Dr. F. W. Root claims, in the *New York Medical Journal* for April 18th, that he has found in the  $\frac{1}{100}$  of a grain the true remedial dose of morphine. He has for five years been using the drug in the following mode, and now commends it to others:

He carries in his case a small package of one-eighth grain powders of sulphate of morphine, to each of which is added a grain of pulverized boric acid. When called to administer this remedy, whose field of therapeutic usefulness seems to him so vastly increased, he dissolves one of these powders in four teaspoonfuls of

water, and after it is well dissolved he takes a teaspoonful of this, puts it into a glass, and adds to it nine teaspoonfuls of water, and from this he gives the patient (infant or adult) a teaspoonful—equal to one three-hundred-and-twentieth of a grain—every five or ten minutes repeating the dose till the desired effect is obtained.

Since so employing this drug he has found it the most sovereign remedy for controlling the attacks of megrim headache and for arresting the diarrhoea, colicky pains, and nervous irritability of intestinal catarrh, whether due to cholera infantum or catarrh of the bowel as a sequel of la grippe in the adult.

In cholera infantum, four or five doses during a forenoon—equal to one-eighth or one sixty-fourth of a grain—and a like amount given in the afternoon, associated with proper dietary and withholding of all milk, at once gives the physician control of the disease.

**DR. WEIR MITCHELL'S USE OF TRIONAL IN EPILEPSY.**—Dr. H. P. Boyer in the *University Medical Magazine* for March, reports favorably on the use of trional as practiced by Dr. Mitchell in both the private and out-patient management of epileptics. As a rule, the patients were benefited in one way or another.

Either the number of attacks was diminished, their severity lessened, or the general physical condition of the patient improved. Early in 1894, says Dr. Boyer, Dr. Mitchell, pleased with the results of this treatment in his private practice, began to use it in his out-patient service. The results of its use and the draw-backs are stated in an account of thirteen cases. Others, says Dr. Boyer, might be added to the list, but the patients neglected to report at the hospital, and the results could not be carefully watched. Others, again, suffered so much from drowsiness and vertigo, and derived so little benefit in regard to the diminution of the number of attacks, that the treatment was not kept

up for more than two or three weeks. Of the thirteen cases referred to, in ten there was a marked decrease in the number of attacks during the treatment, and the physical symptoms also were singularly improved. In five of the cases the number of attacks was less under the trional treatment than under the bromide treatment; in two others, however, the bromides gave more satisfactory results. Dr. Mitchell believes, says Dr. Boyer, that trional may often prove an efficient substitute for the bromides, and he states that he has seen no ill-effects follow its continuous use for many weeks. It is well, he says, at times to give the bromides in the daytime and trional at night.

#### A NEW PREPARATION OF CANNABIS INDICA.

—The *Therapeutische Wochenschrift* for March 1, mentions a new watery fluid extract of cannabis indica, termed extractum cannabis indicæ aquosum fluidum, and states that, according to R. Cowan Lees, it possesses all the beneficial properties of the plant, but does not give rise to that state of intoxication, bordering on poisoning, which follows the use of even medium doses of the alcoholic preparations. It has no effect on the secretion of bronchial mucous, and consequently in suitable cases it seems more efficient than opium, and it has a manifest anodyne and hypnotic effect in pulmonary affections. Lees has observed the best results from its use in tuberculous disease of the lungs, in which it materially alleviates the paroxysms of coughing while at the same time it exerts the precious stimulating and cheering effects of cannabis indica. It is, furthermore, of value in digestive disturbances connected with constipation and as a soporific in the diseases of children. The medium dose for an adult is from thirty to sixty grains; for a child less than a year old, from fifteen to thirty one-hundredths of a grain for each month of age; for older children, from a grain and a half to three grains for each year of age.

**THYROID EXTRACT IN THE TREATMENT OF TETANY IN INFANTS.**—In a recent number of the *Archives of Pediatrics*, Dr. John Thomson, of Edinburg, records a case of tetany in a rickety child fifteen months old, who was treated unsuccessfully with thyroid. The condition of tetany had become established four days before the child was seen, and Dr. Thomson was induced to try the thyroid extract from remembering the frequency with which tetany has been said to occur in cases in which the thyroid gland has been excised. No change was made in the diet for some days and thyroid tabloids were given. The child, however, continued steadily to get worse, but rapid improvement took place when a suitable dietary was instituted. Dr. Thomson alludes to the remarkable results obtained by thyroid treatment by Dr. Bramwell, and also by Dr. Gottstein, and he points out that there are probably very essential differences between the idiopathic tetany of adults and the commoner form in children so frequently, if not invariably, associated with rickets.

**THYROID EXTRACT IN THE TREATMENT OF TETANY IN THE ADULT.**—Levy-Dorn in the *Therapeutische Monatshefte*, reports a case of idiopathic tetany of three years' duration in a woman 21 years old, which, after resisting varied treatment, yielded upon the administration, over a period of nearly four weeks, of four grains of thyroid extract at intervals of one, two, or three days.

**NOTE ON PARALDEHYDE.**—Dr. Aitken, of Edinburg, contributes two interesting cases to the *British Medical Journal*, going to show that paraldehyde is a remarkably innocuous drug, that where a large dosage is indicated it can be well borne, and that it is an efficient calmate and hypnotic in difficult cases. We quote two cases to substantiate the claim:

Case I.—A female, aged 81, melancholic, with suicidal tendency, was treated with paraldehyde after numerous other

sedatives had been tried with even injurious effects. This patient, for several months, took more than 1 ounce (once 4 ounces) in the twenty-four hours. The medicament not only gave great relief, but proved a most suitable exhibit, for the patient recovered and remained well for three years.

**Case II.**—A female, aged 19, had been epileptic from childhood. About two years ago the fits became more frequent, often occurring two or three times a week. At this time she was anemic, and also had chronic myringitis. Some improvement followed the treatment of these affections. The anemia yielded to iron in the form of bromide, which, to a slight degree, beneficially influenced the fits. Some improvement also resulted from change of air. Still the convulsions occurred weekly. One peculiarity about the case was the prolonged aura. When the fit was to happen she felt upon awakening in the morning very ill, and would continue for hours in a most wretched condition. She could not describe any special sensations. Towards midday, or even in the afternoon, the general convulsions seized her. The wretched feelings never passed off without the occurrence of a severe fit. There was no suggestion of a Jacksonian type. In studying this case the question of warding off the fits forced itself upon attention, seeing that so long an interval of warning was given. The idea of producing sleep then suggested itself, but how to avoid the danger of sedatives presented itself as a most serious difficulty. The favorable experiences of paraldehyde made one hope that the obstacle could be avoided. The result was most surprising. After the first dose of 15 minims she was sound asleep in five minutes, and having enjoyed some rest she awoke refreshed, and with all disturbance gone. She has still the threatenings, but even they are not so frequent. She has, on several occasions, had intervals of one month. This fact, coupled with the much better general condition of health, shows that while

securing the above mentioned immense advantage, no bad results accrue from the treatment. For more than a year she has had no fit except on one occasion, when no paraldehyde was in the house, and no one to send for it. She never needs to take more than 30 minims.

**PERCHLORIDE OF MERCURY IN WHOOPING COUGH.**—The *Giornale Medico del Esercito* advises painting the throat of children affected with whooping cough with a 1 per 1000 solution of perchloride of mercury, going well to the back of the tongue and over the uvula and tonsils every morning. No toxic effect has been observed, and most cases can be cured in from 8 to 14 days.

**THE SUB-CUTANEOUS USE OF IODINE AND IRON IN GRAVE ANEMIA.**—According to the *Wiener Medicinische Presse*, Dr. Meuella, of Rome, uses the following formulas:

- R** Pure iodine ..... 3 grains  
Potassium iodide, enough to  
make it dissolve in  
Distilled water ..... 300 grains  
Sig.: For subcutaneous injection.
- R** Iron and ammonium citrate... 15 grains  
Distilled water ..... 300 grains  
Sig.: For subcutaneous injection.

A Pravaz-syringeful of the first solution is injected into one buttock, and at the same sitting a like quantity of the second solution is injected into the other buttock. The injections may be given daily or twice a day. The remedial effect is said to be very prompt.

**ANTIPYRIN-SALOL IN THE TREATMENT OF UTERINE HEMORRHAGE.**—The *Chicago Medical Reporter* gives the following as the mode of procedure of Dr. Labadie Lagrave. He had found antipyrin useful in uterine bleeding. It is, however, difficult to introduce the powdered antipyrin into the uterine cavity, so it occurred to him to use antipyrin liquidified with salol, thus producing a medicament at once hemostatic and antiseptic. The following is the mode of procedure: Equal parts of antipyrin and salol are placed in a test tube so as to oc-

cupy about one-third the space; they are then heated over an alcohol lamp, when the mixture is soon transformed into a clear liquid with a slightly brownish tinge. This is not the time to use the solution, for it will solidify too rapidly. The heating is continued until a well-defined brown color is noticed, when there is no danger of its rapid solidification. The liquid is introduced by means of cotton soaked in it and rolled on a wooden applicator; after seeing that the liquid is not too hot the application is made through the speculum. If the hemorrhage is excessive, two applications are made at the same sitting, after which a tampon soaked in glycerated creosote is placed in the vagina and the patient sent to bed. The applications are free from danger and occasion no pain; their hemostatic action is rapid, sure, and complete; the hemorrhage is quickly stopped, and by the second day there is no trace of hemorrhage; it is rare that the application needs to be repeated. The method is efficacious against hemorrhages due to fungous metritis, to misplacements, fibromyomata, and also to malignant tumors in the beginning, when the hemorrhage is due more to congestion than to ulceration.

**CLINICAL VALUE OF DIURETIN.**—Dr. Louis Vintras, of the French Hospital in London, furnishes a record of five cases treated with diuretin, in *The Lancet* (April 25, 1896). He calls them typical cases with varied results, furnishing best indications for further investigations. The cases were the following: 1. A man, 57 years old, with œdema of the lower extremities, marked cyanosis, difficulty of breathing, and scanty secretion of urine. Digitalis and nux vomica, followed later with 2 grain doses every hour of diuretin, and then digitalis again substituted, caused rapid improvement and recovery. 2. Man of 44, short breath, pain in region of heart, hacking cough, sleeplessness, thick urine with deposit, etc.; similar treatment, ending with strophanthus, caused great im-

provement, but three months after discharge he died. 3. Man of 37 years, hypertrophic cirrhosis, marked symptoms of uremia, scanty urine, œdema of both legs, etc.; he received 2 gr. diuretin every hour with a mixture of nitrate of potash and acetate of ammonia. Six hours after admission he passed 8 ozs. urine, and a few hours later 10 ozs.; the case was hopeless, however, and he never rallied but died the next morning. 4. Man of 39, influenza, pain in loins, abdomen began to swell, urine thick and diminishing, œdema of scrotum and penis. Diuretin was given for two weeks without result. 5. A young girl, disease of kidneys, with signs of large white kidney following an acute attack of parenchymatous nephritis; diuretin had no effect. The author concludes that "when the kidney affection is primary and well established \* \* \*, diuretin is of little or no value, while in those cases in which the kidney trouble is secondary to morbid lesions in other organs and the epithelial layer of the urinary tubules in the seat of disease, diuretin is a valuable therapeutical agent."

**OXYGEN ANTIDOTAL TO THE SEQUELA OF ETHERIZATION.**—Dr. Theophilus Parvin, in the *Medical and Surgical Reporter*, states that he is a convert to the views of Landau, of Berlin, in the practice of the inhalation of oxygen after anesthesia by sulphuric ether. He further says:—"Dr. Landau is one of the few Berlin operators who prefers ether to chloroform as an anesthetic; and he has found by a very large experience, that as soon as the operation is ended if the patient immediately inhales oxygen freely for a few minutes she does not subsequently suffer from headache or nausea and vomiting. The immediate effects of inhaling oxygen are: the dusky hue of the face disappears, and the pulse becomes fuller and slower; there is, too, a more rapid recovery of consciousness. I had many opportunities of witnessing these results at Dr. Landau's hospital. The day subsequently to opera-

tions I several times visited these patients, at the doctor's request, asking them as to the freedom from vomiting and pain, and the invariable reply was that they had neither."

Dr. Parvin has four times operated with anesthetization by ether, followed by oxygen. The results were most satisfactory. Two of the four cases were test cases, in that they had previously undergone operations in ether anesthesia, and suffered severely for two days from headache, nausea and vomiting—so severe was the last that during the two days no food could be taken and retained. He was not the operator in either case, and as in each, curetting only was done, the anesthesia was probably brief.

One of these patients had hemorrhagic endometritis: the uterus, though the patient had never been pregnant, was increased in length nearly three-fourths of an inch. The treatment was through curetting, injection of Churchill's tincture of iodine, and gauze drainage. After the operation, which was between twelve and one o'clock, the patient inhaled oxygen for a little less than five minutes; five hours subsequently she took her evening meal as usual, so far as food and quantity was concerned. He adds, that the subsequent treatment consisted of the cold wet pack to the lower abdomen, the injection of cold water in the vagina morning and evening, and into the rectum at night of Rheinstadter's mixture. The next menstruation was free from pain and profuseness,—the two evils which led her to consult me.

As to the Rheinstadter mixture, mentioned in the former paragraph, Dr. Parvin furnishes the following explanatory note:

The formula of Rheinstadter's ergot mixture for rectal injection, as given by Schauta, "*Lehrbuch der Gesammten Gynäkologie*," is as follows:

Ergotini dialysati spissi.....	5.0
Aquae destillatae.....	35.0
Acidi salicylici.....	0.1
Glycerini.....	10.0

A teaspoonful of this mixture, with two

tablespoonfuls of luke-warm water, is injected by a rubber ball syringe into the rectum, after the bowel has been emptied.

In the *Medical Annual* for 1896, I have given the formula, says Dr. Parvin, but by some typographical error, a tablespoonful instead of a teaspoonful of the mixture is directed. So too, the formula, taken from another source, slightly differs from that prescribed. He closes his article as follows:—

"I can then, from a large observation at Berlin, and also from a small personal experience, most strongly recommend inhalation of oxygen as a necessary sequence of ether-aneesthesia, if all unpleasant and sometimes very injurious consequences of such anaesthesia are to be averted."

EXTERNAL USE OF GUAIACOL. — The *British Medical Journal*, quoting a Barcelona journal, states that Dr. Larra y Cerezo has used external applications of guaiacol in a variety of conditions, including some of high temperature (typhoid fever, "fever of growth"). The effect has been to reduce the temperature by two or three degrees centigrade within half an hour or so. In one case of typhoid fever, the rapid reduction of temperature was followed by alarming symptoms of collapse. In this case  $1\frac{1}{2}$  grams of the medicament had been painted on the skin of the popliteal space and the front of the knee. The experience of Larra y Cerezo has led him to the following conclusions:

Guaiacol suspended in tincture of iodine may be applied externally to the thorax as a revulsive in chronic bronchopneumonia, and as a means of promoting the absorption of pleuritic effusions; for this purpose he uses it in the proportion of 3 grams to 20 grams of tincture of iodine and the same quantity of glycerine, this being painted on every day. In anasarca from anuria due to scarlatinal nephritis the same mixture may be painted on the lumbar region. As a local anes-

thetic guaiacol is less dangerous than cocaine; for this purpose it should be used dissolved in water in the proportion of 20 per cent., or suspended in sterilized olive oil (1 in 10, or 1 in 20); 5 to 10 centigrams of either of these preparations may be injected under the skin or mucous membrane, the anesthetic effect being produced in eight to ten minutes. Applied as an embrocation ( $1\frac{1}{2}$  to 2 grams of pure guaiacol) to the skin the drug is a useful antipyretic in tuberculosis, typhoid fever, etc. Collapse must, however, be guarded against, and the method is contra-indicated in cases of cardiac weakness and in certain cases of idiosyncrasy.

### Book Notices.

**AN AMERICAN TEXT-BOOK OF SURGERY, FOR PRACTITIONERS AND STUDENTS.** By Charles H. Burnett, M.D., Phineas S. Conner, M.D., Frederic S. Dennis, M.D., Wm. W. Keen, M.D., Charles B. Nancrede, M.D., Roswell Park, M.D., Lewis S. Pilcher, M.D., Nicholas Senn, M.D., Francis J. Shepherd, M.D., Lewis A. Stimson, M.D., William Thompson, M.D., J. Collins Warren, M.D., and J. William White, M.D. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Second edition, carefully revised. Illustrated. Imperial 8vo, pp. xiv.—1248. Price, \$7.00 cloth; \$8.00 sheep, and \$9.00 half-Russia. Philadelphia: W. B. Saunders, 925 Walnut Street. 1895.

In the series of American Text-Books issued by W. B. Saunders, this volume takes high rank; the first edition was issued less than four years ago, and it has been adopted as text-book in over sixty medical schools in this country, while the sale generally, in this country and abroad, has been very large. This fact constitutes the best and a practical endorsement of the value of the work.

A second edition becoming necessary, the opportunity was utilized by the editors to revise the original text—profiting by friendly criticisms and leisure consideration of the collaborators—and to incorpo-

ate new topics and data suggested by the progress in surgery during the past few years. New sections have been added; many new and approved operations and methods of treatment are described; certain important sections have been enlarged and rewritten; and many illustrations have been added, and some of the old ones redrawn. The illustrations in the books published by Saunders are always notable, and are the work of trained artists in a special department of this great publisher.

The book is voluminous, handsomely printed, and substantially bound. The index occupies 34 pages of compact print, and best indicates the comprehensiveness of the work. No library will be complete without this volume, but the physician whose store of books is limited can do without other books on surgery if he has this.

**INFANTILE MORTALITY DURING CHILDBIRTH, AND ITS PREVENTION.** By A. BROTHERS, B. S., M. D., Visiting Gynecologist to Beth Israel Hospital, New York; Attending Gynecologist to the New York Clinic for Diseases of Women; Instructor in Operative Gynecology at the New York Post-Graduate Medical School and Hospital, etc. Octavo, pp. viii.—179. Price, \$1.50. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St. 1896.

The author of this treatise—which was contributed in competition for the William Furness Jenks Prize, and achieved the award—is well known as a frequent contributor to our leading journals on obstetrics, gynecology and pediatrics. He has incorporated in this work his experience gathered during a ten-year's active midwifery practice in the most crowded section of New York City, and the result proves that his experience has been comprehensive, that he has been a close student and observer, as well as a competent recorder for the benefit of the profession and humankind. It is impossible to outline the scope of this work in our allotted space; our preceeding remarks will vouch for the fact that the expectations aroused

by the title of the book will be fully satisfied. Every phase of danger to the infant is presented in complete detail and didactically disposed of. It is an instructive work for reference and study.

**ELECTRICITY IN ELECTRO-THERAPEUTICS.** By EDWIN J. HOUSTON, Ph.D., and A. E. KENNELLEY, Sc.D. 412 pages, with 128 illustrations. Publishers: The W. J. Johnston Co., 253 Broadway, New York. (Price, \$1.00.)

This little book is designed to supply the physician with "reliable information respecting such matters in the physics of electricity applied to electro-therapeutics, as can be readily understood by those not specially trained in electro-technics." The subjects introduced are explained in clear language, elucidated with appropriate illustrations, and for those interested the book will no doubt furnish desirable information. It is a handy volume, printed in large type, on heavy book-paper, and elegantly bound in cloth covers.

**DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM, ANUS AND CONTIGUOUS TEXTURES.** Designed for Practitioners and Students. By S. G. GANT, M.D., Professor of Diseases of the Rectum and Anus, University and Woman's Medical Colleges; Rectal and Anal Surgeon to All-Saints, German and Scarritt's Hospital for Women, Kansas City, etc. With two chapters on "Cancer" and "Celiotomy," by Herbert William Allingham, F.R.C.S., Eng., Surgeon to the Great Northern Hospital, etc. Octavo, pp. 400. Illustrated with sixteen full-page chromolithographic plates and 115 wood-engravings in the text. Publishers: F. A. Davis Co., 1914 and 1916 Cherry St., Philadelphia. (Cost: Extra Cloth, \$3.50; Half-Russia, Gilt Top, \$4.50.)

We have read through this book with more than ordinary interest, and in a general way have found that it is written in a terse and lucid style, well arranged, simple and instructive, with most excellent and profuse illustrations; the impression after finishing inspection and perusal is, that it is a most excellent work and sure to be appreciated. For the practitioner with rectal work to do, it will be

indispensable; it appears to include everything pertaining to this specialty. It is designed for the student, general practitioner and the specialist, and we have no doubt the latter will value it more highly than those only generally interested because it will be of greatest help to him.

The press-work, as is usual with books of the F. A. Davis Co., is excellent; the illustrations are good, and the chromolithographs particularly excel almost everything of the sort that we have seen. A very complete index makes every subject in the book readily available.

**THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1896.** Edited by a corps of thirty-seven department editors—Europe and American—specialists in their several departments. 728 octavo pages. Illustrated. \$2.75. Publisher: E. B. Treat, 5 Cooper Union, New York.

The fourteenth yearly issue of this valuable one-volume reference work is at hand; and it richly deserves and perpetuates the enviable reputation which its predecessors have made for selection of material, accuracy of statement, and great usefulness. The corps of department editors is representative in every respect. Numerous illustrations, many of which are in colors, make the "Annual" more than ever welcome to the profession, as providing, at a reasonable outlay, the handiest and best yearly résumé of Medical Progress yet offered.

Part I., comprises the New Remedies, together with an extended Review of the Therapeutic Progress of the Year, by the esteemed Professor H. A. Hare.

Part II. includes a number of recent articles by eminent authorities: How to determine the parasite of malaria; The Diagnosis of toothache and neuralgia; The Remedial value of Cycling; Sensory distribution of spinal nerve roots; Angio Neurosis; Life Insurance; and Roentgen's method of Shadow Photography, illustrated.

Part III., comprising the major portion of the book, is given to the consideration of New Treatment. It covers 500 pages and is a retrospect of the year's Medical and Surgical Progress.

The Fourth, and last part, is made up of miscellaneous articles, such as Recent



Advances in Sanitary Science; New Inventions in Instruments and Appliances; Books of the Year; etc.

The arrangement of the work is alphabetical, and, with its complete Index, it is a reference book of excellent character. It presents a satisfactory recapitulation of the year's progress in medicine, serving to keep the practitioner abreast of the times and the medical literature of the world.

**THE NEWER REMEDIES.** By VIRGIL COBLENTZ, A. M., Phil. D., Professor of Chemistry, New York College of Pharmacy. Containing nearly 1000 of the Newer Remedies, including all the Synthetic Compounds, Rare Chemicals, Proprietary Preparations, etc., fully described as to their origin, chemical formulas, synonyms, therapeutic uses, doses, etc. Second revised and enlarged edition; 86 pages of small type. Publishers: D. O. Haynes & Co., New York. (Price, 50 cents.)

This is a very complete and reliable, alphabetically arranged dictionary of new remedies; it is a valuable book for quick reference. Mess. McKesson & Robbins, 91 Fulton St., New York, have secured a large edition, and will send a copy free to any of our readers who will ask for it, enclosing professional card and referring to this notice.

**COMMERCIAL RELATIONS OF THE UNITED STATES.** 1894 & 1895. Vol. I. Review, Africa, America, Asia, Australasia. Published by Department of State, Washington, D. C., 1896.

A book of statistics, compiled from the reports of U. S. Consuls and the records of the Government; interesting to those interested; full of instructive data even for the editor of a medical journal. It tells us, for instance, that this country imported kola nuts from the British West Indies, during June 1894 to 1895, to the amount of \$191.61 from Kingston, \$58.97 from Montego Bay, and \$14.88 from Port Maria; that isn't very much to make so much talk about. There are more important items about cinchona, coca, and other staple crude drugs. It is gratifying to learn that we sold medicinal preparations to the amount of \$66,004.00 to the Argentine Republic in one year, and similar amounts of drugs to other states of South America. We expect to spend many an hour over this book, looking up such facts out of curiosity and to learn to appreciate this country's resources.

## ANNOUNCEMENTS.

*The Laryngoscope*, monthly, devoted to disease of the nose, throat, and ear, will appear in initial number in July, from St. Louis, with the experienced Dr. Frank M. Rumbold (assisted by Dr. M. A. Goldstein and two score or more specialists) as editor and publisher.

*The Woman's Hospital Surgical and Gynecological Clinic* will be issued from St. Louis on June 1st, Dr. Geo. F. Hulbert, President of the St. Louis Woman's Hospital, editor and publisher. Advance sheets show a 24 page, 9 x 12 inches, handsomely printed and illustrated journal. Subscribers will be sought primarily among country physicians who combine surgery with general practice, but city doctors may also subscribe.

*The Medical Herald*, published at St. Joseph, Mo., must be added to our list of journals who take matter from exchanges and palm it off on their readers as "original." On pages 207 and 208 of the April issue of the *Herald*, we find four paragraphs on new remedies, original with us, and taken from page 260 of our March issue; the offence is slightly aggravated by interpolations for which we would decline responsibility.

**NOTE.**—An extended and carefully compiled review of *THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY*, prepared for this issue, was lost in transit from the editor to the printer. We will endeavor to do justice to this elaborate and very valuable work in our next number. Meanwhile our readers, those who are not yet familiar with book, will do well to write to Mr. W. B. Saunders, 925 Walnut St., Philadelphia, for a copy of the Prospectus.

**THE NEW Illustrated Catalogue of Medical Books** just issued by P. Blakiston, Son & Co., (1012 Walnut St., Philadelphia, Pa.) is a handsome pamphlet of 64 pages and cover; it contains descriptions of nearly three hundred standard works, including books on medicine, dentistry, pharmacy, chemistry, microscopy, hygiene, nursing, and allied subjects. Interspersed with the descriptive articles there are portraits (well done) of about fifty of the most popular authors of the day. The arrangement is alphabetically by authors' name, while an elaborate subject index completes facility of reference. The publishers make a novel offer; viz., to send books on approval; how this is done is explained on the first page of the catalogue. Our readers will do well to write for a copy of this catalogue.

# The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. IV.

NEW YORK, JUNE 15th, 1896.

No. 12.

## Original Articles.

### *THE RESOURCES OF CLIMATE IN HEALTH AND DISEASE, WITH SOME REMARKS ON SPECIAL CLIMATE.*

By SAMUEL S. WALLIAN, A.M., M.D.

(NINTH PAPER.)

As has already been alleged, climate is coming to be recognized as actual capital, both for the individual and for the state. The logic of racial progress unmistakably points to the fact that its critical selection is becoming more and more a necessity, even for those in health. The law of natural selection is getting in its constant but unseen work. In spite of some apparent contradictions and anomalies, culture, refinement, and moral and intellectual development are advancing, and this advancement implies increased susceptibility to every item of the physical environment, therefore greater sensitiveness to climatic vicissitudes. As a general law, the coarser the physical, mental and moral fibre the more nearly immune to climatic and other external influences.

Granting the assumption it follows as a logical sequence that the sanatorily propitious regions of the earth will eventually become the rallying points of populous centers of the more sensitively and esthetically organized representatives of the race. As yet this aspect of evolution has not been considered. For the most part those who have sought out the more desirable localities have been prompted either by mere commercial reasons, an inherited or acquired invalidism, or by a spirit of adventure and desire for change.

The semi-barbaric may revel in barbaric and inhospitable environment, but it is both logical and inevitable that the culmination and final outcome of evolution will demand for the higher organisations the very best conditions obtainable, regardless of the cost and effort required to make these conditions available. While in a general way the Aryan race has been the dominant factor in peopling the more favored climes, the latter have been more or less seductive from a materialistic point of view, and the choice of climates has not been made very critical or discriminating. Gradually the most propitious will be ferreted out and adopted, and, furthermore, existing advantages will be conserved and supplemented through the employment of the numerous and efficient scientific aids now in process of development, while minor disadvantages will be measurably overcome by the same means.

The vital question which will soon force itself into marked prominence, is,—Where are the genial and salubrious localities?

And this question is not so much to know where the average individual can pass his days with the least vital wear and tear, the minimum outlay of precaution as to his health, but where the refined and cultivated nature can realize most toward developing its best powers and bringing it to its highest state of attainment, and where there is least waste of time and opportunity through sheer fighting the elements, and battling against climatic inhospitality.

It is easy to summarize by reiterating the patent fact that Europe and North America present climatic features most compatible with the wants of the pro-

gressive spirits of the race. But, as in both these there are regions so uninviting and insalubrious that they can not be considered, it is necessary to particularize and discriminate.

An ideal climate is not simply one in which certain leading characteristics or qualities are present in proper degree, such as a mean humidity, winds moderate in force and favorable as to direction and frequency, adequate and not excessive rainfall, etc., there must be a harmonious aggregation of all the more desirable qualities, and a more or less complete absence of the undesirable ones. Thus, warmth is essential, in fact a *sine qua non*, but not to the degree of debilitation and relaxation, for these lead to ultimate degeneration. Excessive moisture is a fatal drawback; whereas the opposite extreme of excessive cold and aridity may be to a certain extent artificially overcome, although the tendency of cold climates and those in which extremes are either too great or too sudden is to drive people too much into overheated apartments, and render them hypersensitive to even moderate changes, which normally act as a tonic and prove enjoyable and invigorating. In a word, that climate is desirable in which equability does not imply absolute monotony, where sunny days preponderate without becoming a daily reiteration of untempered and unendurable glare, where the transition from one season to another is neither sudden nor wholly unnoticeable, where changes occur, but not in the harsh manner as to be shocking, nor yet so slight as to be insipid and characterless, and where atmospheric movements are brisk enough to prevent all approach toward stagnation, without being too rapid or persistent for comfort or utility, and more or less regular and uniform rather than fitful. But even when all the many items, an harmonious blending of which we recognize as the perfection of climate, have been found to prevail in any locality, it still remains to inquire as to the character of the

soil; since, with all the meteorologic factors decidedly favorable, the nature of the soil may be so inimical as to virtually negative the whole aspect of the climate under consideration. The temperature may be ideal, the rainfall and humidity all that could be desired, the prevailing winds and the whole procession of the seasons as perfect as has ever been depicted by the poets, or by enthusiastic lovers of nature, and yet a sodden and non-porous soil can make any climate sanitarily undesirable and unendurable.

Climatologic Utopia, alas, does not exist, or at least has not yet been discovered on this planet. It is therefore the approximations to a sanitary ideal that are to be sought. The burden of every investigator's inquiry is, Where are the favored spots on the face of the earth in which these genial conditions and this ideal blending of conditions prevail? Where can be found the nearest approach to that aggregation of felicitous qualities and absence of inhospitable ones which constitute an approximation to the lost Eden, that beautiful estate which has haunted poets and idealists since time began?

Turning to the Old World, the more popular climatic resorts are found in the region bordering the Mediterranean, in some of the elevated mountain valleys among the Alps, in the vicinity of the many thermal and mineral springs of Germany, France and Austria, and in some of the island groups of the various coasts. Of the lowland resorts, or those which do not depend upon elevation above the sea-level for their effects, the shores of the Mediterranean, or that portion of them skirting the Gulf of Genoa, and known as The Riviera, are most noted and most patronized. This region possesses a mild climate, is picturesquely situated at the foot of the Maritime Alps, and has the glamour of age, classical and historical monuments and mementoes, and fashionable prestige. Immense and often picturesque caravansaries have been erected at every romantic point, and as a

rendezvous for a majority of the semi-invalids and discontents who flock to them, are a pronounced and permanent success. As downright health resorts, shorn of their sentimental and suggestive auxiliaries, especially for those who need the most efficient climatic aid in their life and death struggle with the more serious and relentless forms of disease, they are all subject to severe drawbacks. Intermingled with their days of balmy sunshine are experienced no inconsiderable number of decidedly dismal days, with fogs, chill and dampness that breed wretchedness and malaria in about equal proportions. The temperature, much of the time so restful and soothing, is nevertheless subject to quite severe fluctuations and can not be relied upon. The region is, so to speak, a Franco-Italian province, extending from Toulon to Spezzia, and includes Hyères, Cannes, Nice, Villa Franca, Monaco, Mentone, Bordighera, San Reno, Albenga, Savona, Genoa, etc., although the Riviera proper begins at Nice and ends at Spezzia, and is wholly Italian.

Referring to the more prominent points in detail, Nice is the most populous of all the resorts, numbering nearly or quite 90,000 inhabitants, who depend on fruits, oil, odors and strangers for their means of subsistence. The city possesses many fine attractions, two of the more noted being the Promenade des Anglais, and Jardin Public, but the locality is more subject to sudden variations of temperature than the others, and many sensitive invalids shun it altogether.

Hyères is less populous, numbering but 15,000 souls, and for this reason perhaps as much as any more substantial one, is less patronized. Its reputation for mildness is quite equal to any of the Italian resorts except Mentone, but it is unfortunately subject to the odious and trying mistral, to which no one can get acclimated, and is also subject to fogs which are frequent, heavy and chilling.

Mentone is warm,—sometimes uncomfortably so, and according to one com-

petent authority, "so depressing as to encourage the suicidal mania." It is a small village of not more than 10,000 inhabitants, but having in its vicinity the celebrated prehistoric caves in which are found the remains of extinct species, with other attractions, is more patronized than many others, being one of the leading Mediterranean resorts, in spite of its depressing effects,—so many invalids and pseudo-invalids will patiently endure so much for the sake of fashion and their health!

Bordighera is very sunny, but is voted very dull, and so is not so popular.

Other points do not vary much from these examples, and although the entire region is a kind of sanatory Mecca to which thousands of social and invalid pilgrims annually flock, there are numerous localities in Southern Europe which are more favorable to invalids, especially to those suffering from pulmonary troubles. For asthmatics all these low-level resorts are apt to prove delusive and disappointing. Bone caves and other objects of antiquarian interest give little aid in relaxing the grip of bronchial spasm!

The purely maritime climate of Madeira is far more desirable for tubercular and asthmatic sufferers, being equable and balmy, but it has become the resort of so many thousands in the last stages of phthisis, that it is fairly depressing and dismal, from the number of deaths constantly occurring. If patients could avail themselves of its climatic benefits, without being affected by its constant importation of moribund subjects and consequent abnormal swelling of its mortality reports, conditions for which the climate is only indirectly responsible, it is very desirable.

Monte Carlo would be a capital health resort but for the demoralizing effects of its gaming madness, which attracts such an annual army of the gambling class of moral degenerates that rational people are crowded out, or kept in a state of unnatural tension and excitement which is,

to say the least, not conducive to health of body or mind.

The Canary Islands are beginning to attract attention as possessing a more equable, and at the same time more bracing climate than can elsewhere be found in the Eastern Hemisphere.

Of celebrated spas and other European resorts of note, which do not rely upon either altitude, proximity to the sea, or climatic mildness for their attractions, there are far too many to warrant individual mention. Some of the best known are Vichy, Baden Baden, Karlsbad and Aix-la-Chapelle, which collectively cater to the bibative, bathing, sight-seeing and fashionable flirting wants of half a million people every season. They each and all possess advantages and disadvantages, and those who patronize them are often greatly benefited, some times seriously disappointed and occasionally both physically and financially fleeced.

At these spas climate has something to do with the results experienced, but it is secondary to the bathing and guzzling attractions; while at many of them all these are subsidiary to the social features. Most of them are romantically situated in the midst of ancient ruins, and interesting natural scenery, in close proximity to the world's most celebrated and valuable museums of art, architecture and archæology, which have been ages in accumulating, so that climatic influences are powerfully seconded by sentiment, suggestion, and the healthy stimulus of moral and intellectual culture and through mental distraction. All the higher faculties and attributes are appealed to, gratified and developed. Moreover, all these are legitimate accessories of climate, and will sooner or later be invoked toward the rational and scientific amelioration of climates which are not wholly congenial, but which must be tolerated because they can not be escaped.

Of course there is a large army of physical malcontents, the physiologically

lazy, the victims of *ennui* and the "lymph-albuminous," as Bartholow calls them, as well as the subjects of mal-assimilation and non-elimination, whose ailments take the form of retained excretions and secretions, earthy deposits,—biliary, renal or urinary calculi, enteroliths, or of a general stagnation of overworked functions in underworked bodies, pseudo-membranous growths and hypertrophies, or merely of the logical results of over-ingestion and sub-oxidation.—obesity, in whom a thorough course at any of these alkaline-saline springs, either hot or cold, will work miracles. And these wonderful results follow, not because the waters are so charged with many of the same mineral impurities—they are presumed to eliminate, but because water is the one universal detergent and eliminative; for it long since dawned upon many of the foremost medical minds that the purer the water the more powerfully detergent, and that the "best" waters for all "solvent" purposes, as well as for bathing uses, are those which contain the least percentage of foreign ingredients, strictly excepting dissolved gases, common air, carbon dioxide and free oxygen which they contain.

Of the other Old World resorts and local climates which have been found worth seeking, a few samples may be cited:

Cairo, in Egypt, presents characteristics which make it a desirable place to sojourn for dyspeptics and those who suffer from nervous prostration, insomnia and all their long train of concomitant miseries, and especially for such as have been overdoing some high-pressure occupation under unfavorable hygienic conditions. Its many points of interest and its proximity to ancient and modern objects of wonder,—mosques, pyramids and historical localities, furnish healthful entertainment for the invalid, so that the region never grows tiresome or commonplace; while the extreme disparity between the night and day temperatures does not contra-indicate it for the types of invalids above cited.

Turning to those resorts which have a considerable elevation above sea-level as a prominent factor, one of the most popular is the Engadine, a Swiss valley lying along the river Inn, having an elevation of from 3500 to 6100 feet, and being hemmed in on both sides by mountains. Its winters are long and cold, so that it is necessary to house domestic cattle for eight months in the year! But the summers are short and delightful, and thousands of health seekers make the most of it every season.

The next most popular locality is Davos-Platz, in the Davos valley among the Swiss Alps, with an elevation of 5000 feet. This valley is also surrounded by rugged mountains, with glaciers not an infrequent incident of the landscape. The climate is about as rugged as the scenery, the summers are short and quite subject to sudden variations of temperature, which make it rather trying to the more delicate invalid, although to such as can react against these changes, or who protect themselves with ample clothing, and observe the most rigid hygienic precautions it is tonic in the highest degree. It is still quite the fashion for English, French and German physicians to send their consumptive clients to Davos-Platz, but many of them, from their unfavorable experience, are becoming disenchanted with the reputation of the locality. To other classes of patients, and especially to such as are troubled with a constitutional laxness of fiber, and need general toning up, its pure, bracing air and grand scenery are a godsend.

Except for its remoteness from the sea, the valley of Cashmere, in Northern India, possesses an almost ideal climate. Doubtless it will become better known and more highly appreciated after other desirable and more available localities have been fully appropriated.

If it were not for the fact that climates like prophets are not without honor save in their own countries, the Isle of Wight and the Isle of Man, so immediately ac-

cessible to all of Western Europe, would rank high as health resorts.

Of the southern island-continents Australia is too dry, and New Zealand too moist to be ideal. The latter, however, stretching through a thousand miles of latitude, compasses such a wide range of climates that one can find within his boundaries almost any combination or variety of climatic conditions that could be named or desired. At Dunedin and Invercargill, at its southern extremity, is found the counterpart of the tonic and inspiring climate of bonnie Scotland; while at Auckland, in the extreme north, the resemblance is to the climate of the South Sea Islands in summer, and to the Riviera in winter. Between these extremes there is almost every variation of climate to be found in any country. The lake region about Hawea and Wakistipu possesses an atmosphere which is dry, bracing and full of sanatory inspiration. According to his need the invalid may pitch his tent on the broad plains of Canterbury, bask in the tempered and balmy sunshine, in the vicinity of Nelson, on the west coast, or cool off under the shadow of the glaciers of Mount Cook.

South of this miniature continent lies Tasmania, or what the geographers of our school days called Van Dieman's Land, where the prevailing characteristics are warm, dry and equable summers and bracing but never excessively cold winters. The island is mountainous and picturesque in the extreme, and to such invalids as would enjoy, or comfortably endure the long sea voyage, and who long to hie themselves to a spot where quiet reigns from year's end to year's end, to those who have prematurely broken down from worry, overwork or reckless living, and who are not so constituted as to find it irksome to endure the comparative isolation involved, no better selection could be made. The remoteness of the region will, as in other cases, prove a bar to immediate recognition.

There are many groups of small islands,

not so remote, which are climatically as interesting as they are unknown. In some of them the climate is so perfect that if there is any pertinent criticism to be passed, it is that they too nearly realize the prevailing ideal of the fabled Paradise! The tendency would be to woo the physical, intellectual and moral instincts into a state of calm that would end all the progress and usefulness of the fortunate and unfortunate victims of their subtle and luxurious spell. These groups are however small, and except by here and there an eccentric wanderer, like the author-artist Stephenson, will remain *terra incognita* for several generations to come.

The Sandwich Islands may be put down as an exception. Here nature has been most prodigal of her gifts, and human enterprise has no serious task before it to develop these islands into habitations from which the transition to a future Paradise need not be counted a very shocking change! Americans are stupidly shortsighted if they supinely permit some foreign power to absorb or dominate a mid-ocean health station which promises so much, and which from its position belongs to this country.

Helix, California.

**OVARIAN EXTRACT.**—The *Medical News* has a note on the use of this newly proposed extract in the treatment of the reflex disturbances that follow the removal of the ovaries. It calls attention to the fact that the successful results obtained from the use of thyroid extract in the treatment of diseases dependent upon removal of the function of the thyroid gland has led Mainzer (*Deutsche Medizinische Wochenschrift*) to employ a preparation of the ovaries of cows and calves in the treatment of the phenomena that often appear at the menopause, or in the sequence of removal of the ovaries for any purpose. In a given case the attendant symptoms, fulness of the palpitation of the heart, vertigo, flushing, and sweating, were relieved by the use of such a preparation, which was at the same time unattended with any unpleasant effect.

## THE MINTS.

By A. L. BENEDICT, A.M., M.D.,  
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One of the most remarkable facts to the tyro in botany, is that the natural relationship of plants has almost no bearing on their chemical properties. For example, most of the night-shade family contain narcotic alkaloids, but the potato and the tomato, belonging not only to the same family but to the same genus as the deadly night-shade, are common articles of food. In at least two families, however, the umbelliferae and the labiatae, or mints, a similarity of active principles runs through nearly if not quite the entire list.

The labiatae are characterized by square stems, opposite leaves, irregular flowers, usually roughly imitating a pair of lips (hence the botanical term *labiatae*), and by containing an aromatic volatile oil, which is, in no instance, lethal, except in extreme dose. To say that a drug is harmless admits that it is not of the highest value, for a drug, like an engine, cannot be powerful for good unless its misdirected energies are capable of producing serious damage. Still, it is not fair to condemn the mild oils of the mints as merely domestic remedies, for the skill of the physician is shown not only in managing dangerous alkaloids but in manipulating the delicate and weak tools of the materia medica.

About fifty species of medicinal mints are mentioned by various writers but only a few are at present officinal, namely: *Mentha piperita*, *Mentha viridis*, *Hedeoma*, *Marrubium*, *Melissa*, *Scutellaria*, *Salvia*, *Rosmarinus*, while thyme and the flowers of lavender are represented by their volatile oils. Bolles, in an article on peppermint in the Reference Handbook of the Medical Sciences, and Sayre in his *Organic Materia Medica and Therapeutics*, give lists of unofficial mints which are also mentioned in the appendix of the Dispensatory.

All officinal volatile oils may be given in a dose of ten to twenty-five centigrams, except those of bitter almonds and of mustard which contain cyanogen and are given in about a centigram dose. To avoid error, it may be stated that the non-volatile oils are administered in a dose of at least a teaspoonful, except that containing phosphorus, which corresponds to the dose-range of the volatile oils, and the oil of croton, whose dose is at most a couple of drops. (For similar dose-rules covering the various Galenicals, see the *Therapeutic Gazette* of Nov. 15, 1892.)

The volatile oils of the mints have very similar chemical constitutions, most of those analyzed being built on the benzin ring, with methyl and usually iso-propyl attached. The empirical formulae are about  $C_{10}H_{16}O$ , H and O varying somewhat, and, in turpentine and its congeners, oxygen is wanting. The same or isomeric active principles may be obtained from widely different sources. For example, rosemary, one of the mints, cajuput, eucalyptus and worm-seed all contain eucalyptol; turpentine derived chiefly from cone-bearing trees, has an isomere in oil of true lavender, while the unofficinal *lavendula spica* contains a substance of the same formula and having almost exactly the odor of common turpentine. Carvacrol and thymol, having the same empirical formula, are both present in thyme, the former also occurring in monarda or horse-mint, while the latter is found in satureja and marjoram. One of the most remarkable instances of the widely different source of the same substance is that valerianic acid is found in the plant from which it derives its name, and also in sebaceous matter.

Remembering the antiseptic powers of all organic chemicals built upon the benzin ring (phenol, guaiacol, salicylic and benzoic acids and their compounds are examples), and the nerve-sedative action of methyl, it is not surprising that the mints contain oils of varying constitution but having the common properties of

checking bacterial activity and of diminishing the sensibility of nervous structures. In short, we may say that all of these volatile oils have the same dose, and are both anesthetic and antiseptic. In large doses, they have the power of diminishing the activity of both the white and the red cells of the blood, that is, of checking a tendency to inflammatory exudation and to oxidation of tissue. This is natural, for the blood-cells, like bacteria, are masses of practically undifferentiated protoplasm, and it would be surprising if the action on vegetable protoplasm were essentially different from that on animal protoplasm. While putting the nerve-sedative action of the mint oils to practical use, we must not forget that they temporarily stimulate and irritate, so that they are not applicable to sensitive parts like the conjunctiva and urethra. The action of the volatile oils on the temperature sense is particularly interesting. Either externally, in the mouth, or in the stomach, a sensation of warmth and burning is usually produced, but if a little menthol or oil of the peppermint is taken with water even moderately cool, it seems intolerably cold. Thus, the physiological effect is not to produce an impression of heat as such, but to stimulate the temperature nerve-endings, and exaggerate whatever impression they would ordinarily carry.

The most useful product of the entire mint family is menthol, obtained either from *mentha piperita*, or from the Chinese or Japanese species. Chloral, menthol, carbolic acid, and camphor are bodies of similar consistence, and have the peculiar property of liquifying when two or more are mixed together in almost any proportion. The liquifaction may be hastened by adding a little alcohol or chloroform. In these mixtures, chloral and carbolic acid lose much of their irritating action, though the latter should be avoided unless especially indicated. Such mixtures may be employed to relieve neuralgia, as counter-irritants and likewise sedatives, as



dressings for indolent ulcers, especially if painful,—here may be included fissures of the anus—, as applications in pruritus from various causes, or to relieve toothache, either by being applied to the gum or to the cavity of the tooth on a pledget of cotton. The following formulae will serve as guides:

<b>R</b> Camphorae	
Chloralis .....	āā 10.
Menthol .....	5.
Chloroformi .....	1.
<b>R</b> Menthol	
Chloralis	
Ol. gaultheriae .....	āā 10.

Menthol also affords an antiseptic, sedative and "alterative" ingredient of oily sprays for the nose, accessory sinuses, throat, and lower air-passages.  $1\frac{1}{2}$  to 3 per cent. in liquid alboline, or some similar pure petroleum, is the proper strength. Various other aromatic substances, such as eucalyptol, camphor, salol, oil of gaultheria, oil of cloves, etc., may be used in combination or alone, but, all things considered, menthol deserves the first place in this list. Such an oily spray may be used to abort a cold, a few puffs of the atomizer being made whenever the premonitory chilliness or sensation of congestion is felt. This preventive measure may render life tolerable in places where dust, smoke, dampness, and sudden changes of temperature would otherwise subject susceptible persons to almost constant discomfort and indisposition. The writer has elsewhere expressed the belief that colds are really due to bacterial irritation of the nose and throat. The effect of an antiseptic drug like menthol in aborting and curing acute catarrhs supports this theory. In this connection a note by A. P. Emery, of Mendon, Michigan, in the current number of *Modern Medicine*, is of interest. He has been for many years engaged in the manufacture of essential oils, mainly of the mints, and he states that his employees are conspicuously free from catarrhal affections, while new men, who have previously suffered from such troubles, are quickly relieved after beginning work in the atmosphere of his laboratories.

The writer has several times called attention to his method of employing the same oily spray of menthol and similar drugs in the treatment of gastric catarrh, sluggish secretion, fermentation, etc. The spray is sufficiently heavy to pass through the stomach tube without the endogastric nozzle devised independently by Einhorn.

To reach the lungs, menthol and similar drugs are either volatilized by heat or are sprayed from a nebulizing atomizer. The following formula is adapted to the former method.

<b>R</b> Tincturae iodi .....	5.
Menthol	
Ac. carbolicum .....	āā 10.
Alcohol .....	ad 50.
<b>S.</b> Inhale fifteen drops from a cup partly filled with boiling water, three or four times daily.	

The nebulizers depend on collecting the spray which is forced against glass or some similar smooth surface by an atomizer and which rebounds in a fine mist. Usually the atomizer is contained in a bottle so that any waste falls to the bottom and is re-used. A nebulizer may be expedientized by holding a teacup before the patient's nose and spraying into it from an ordinary perfume atomizer. The solution must have considerable viscosity in order to be used successfully in a nebulizer. The following prescription is much used, so much so that proper credit cannot be given to its originator.

<b>R</b> Tincturae iodi	
Alcohol	
Glycerini .....	āā 100.
Menthol .....	10.

Whether sprays and inhalations containing antiseptics have a positively curative effect in phthisis is disputed. The writer had several cases in general practice which were apparently cured. Unfortunately, all of these presented such marked symptoms and physical signs of early or moderately advanced phthisis that it was not thought necessary to make a bacteriological examination. The beneficial effect in diminishing expectoration, cough, etc., and in allowing better nutrition, is beyond doubt.

It would not be proper to impose on

experienced readers, a full treatise on the therapeutics of peppermint and its congeners. The writer wishes to emphasise the true significance of the word *carminative*. While its etymology refers to the production of an anal "song," during the expulsion of gas, this derivation affords neither a dignified nor a just estimate of the value of carminatives. In an article in this series on "Internal Antisepsis," reference was made to the use of menthol in various conditions of intestinal indigestion with consequent increase of bacterial activity. The carminative action of menthol fulfills almost all the possible indications except the removal of gastro-intestinal contents and the artificial supplying of digestive secretions.

Pain is lessened by a direct action on sensory nerves; bacteria and yeasts are held in check; by the latter fact alone, pain and flatulence are diminished; the spasmodic contraction of circular muscular bands is relaxed, while normal peristalsis is stimulated, thus gas is diminished by expulsion; the slight irritant action of the drug causes a better blood-supply and, with it, better nutrition, less tendency to catarrh and more active secretion of digestive juices. A drug which fulfills these indications is to be respected as something more than "an old woman's remedy."

Thymol, like menthol, which it resembles chemically, is an excellent mild antiseptic though objectionable for hospital use on account of attracting flies. It may be substituted for menthol in many therapeutic applications. On account of its agreeable flavor, it is particularly adapted to dental use. The following formula is suggested for a tooth-wash or gargle.

R Thymol.	
Eucalyptol.	
Menthol .....	ss 1.
Ac. benzoici .....	2.
Alcohol .....	ad 100.

S. Add a few drops to water, enough to cause turbidity.

Thyme, horse-mint and majoram have been especially used as analgesic and stimulating additions to liniments. Teucrium has been recommended for gout.

Wild mint is used as a flavor for meats and alcoholic beverages. Bergamot, hyssop, lavender, rosemary, etc., have been mainly used as perfumes, though also as flavors for medicines and as carminatives. Marrubium is a stimulating antiseptic expectorant. Hedeoma ranks high among emmenagogues and is capable of producing toxic symptoms. Many mints are laxative or diaphoretic, or both, and some are nervines.

The writer is willing to accept a little good natured ridicule for advocating the merits of catnip, the flowering tops being preferred to the leaves. This herb is markedly diaphoretic. It is the habit to ascribe such action on the part of domestic herbs to the hot water in which they are steeped. A cupful of table tea or coffee has no such action, but the same quantity of decoction of catnip, even cold, will usually produce noticeable sweating and two or three cupfuls will cause perspiration quite disproportionate to the amount of water taken. Catnip is also a valuable nervine in cases in which more powerful sedatives are contra-indicated. The writer has used it in combination with celery, coca, etc., in doses corresponding to about two grams of each dried crude drug. Such medication will prove disappointing to the man who wishes to witness a pharmacological experiment every time he gives a dose of a drug. To the man who desires a gradual and mild effect, and who realizes the importance of avoiding active drugs in certain conditions, this homely herb will be a useful addition. To control the spasms, sleeplessness, irritable crying and other nervous reflexes from gastro-intestinal affections in infants, the writer has used decoction of catnip, by enema, with benefit.

It is hoped that this incomplete sketch will serve to call attention to common herbs which we tread under foot and despise, simply because they do not produce startling symptoms, or perhaps because of their very cheapness, since they are, at least, as efficient as some much vaunted importations from the old world. The fact also needs emphasizing that too much of our former therapeutics has been as false in principle as the use of a Corliss engine to drive the wheels of a clock, and that we have devoted too little attention to delicate therapeutic tools.

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## ON THE TREATMENT OF ANTRUM DISEASE.

By JOHN E. BACON, M.D.

The treatment adopted by the writer for all uncomplicated cases of disease of the maxillary antrum associated with pus formation, has been so satisfactory that the results are here set forth in the hope that the method of operation and subsequent treatment may be of service in some stubborn cases which do not respond to ordinary treatment. It consists in cleansing and medicating the cavity through a small puncture in its inner wall in the inferior meatus of the nose, which can be made without general anesthesia, without pain, and which is invaluable for diagnostic purposes in cases in which pus is suspected but cannot be demonstrated. The required instruments are few, simple and inexpensive, and were devised by Prof. Walter J. Freeman, of Philadelphia, Pa., and are made by Chas. Lentz & Sons, of the same city. The set consists of a steel trocar and canula, two silver tubes for permanent use, a silver wash tube, and a hard rubber syringe with rubber tube connections which are made to fit the canula and wash tubes.

*The Operation.*—Cleanse the nares well with the antiseptic spray, cocaineize the inferior turbinal and floor of the nose on the side to be operated upon, insert a rubber operating speculum well into the nostril and place the trocar beneath the inferior turbinal about  $1\frac{1}{4}$  inches from the skin margin; now by bending the septum to the opposite side the point of the trocar will point obliquely into the cavity of the antrum; this can be verified by placing the fingers of the disengaged hand upon the cheek, mapping out the position of the antrum, and then noting the relation of the point of the trocar and its general direction to the fingers upon the cheek; now a slight tap with a leaden or rawhide mallet will cause the trocar to penetrate the thin bone which constitutes the inner

wall of the cavity. The fact that it has penetrated will be recognized by the absence of further resistance and by the firm fixation of the trocar. Care must be taken not to penetrate too deeply and so wound the opposite side of the antrum, as serious hemorrhage might result. The writer has in most cases been able to push the trocar through the thin bony wall with the fingers alone, and this should be done, when possible, to avoid the mental shock which the feeling of the blow with the mallet sometimes gives. The trocar may now be withdrawn, leaving the canula in place, and the rubber tube may be attached to the canula and the cavity syringed out with warm sterilized normal salt solution. The fluid will escape into the nose through the ostium maxillare and will bring with it pus if any be present, and in this manner the cavity may be thoroughly cleansed. After the cleansing the trocar may be replaced and the nut removed, when the canula may be withdrawn over the trocar; now a silver tube is slipped along over the trocar and the latter is withdrawn, leaving the silver tube in place, and this may remain in place as long as required without any irritation. This tube is exactly fitted by the silver wash tube, and the cleansing may be repeated as often as required without inconvenience to the patient, indeed, patients readily learn to adjust the wash tube and to cleanse the cavity themselves. A solution of menthol and camphor in liquid albolene may be easily sprayed through the tube into the cavity, and aristol or some other non-irritant powder may be as easily blown into the antrum by the same means, if it is desired to do so. It is imperative to thoroughly sterilize all instruments used, and to use only warm sterilized fluid in each case, for in case of a mistaken diagnosis a healthy antrum might readily be infected otherwise.

The cases in which this operation is indicated may be roughly divided into acute inflammation (with retention) and chronic empyemas of the antrum; and the writer

believes it to be of great service in another class of cases to which it has not been generally applied, *i. e.*, those in which the changes of atrophic rhinitis have extended to the membrane of the antrum.

*Acute empyema.*—This may follow exposure to wet and cold, as a complication of an ordinary coryza; it more frequently happens as a complication or sequel of la grippe. These cases are probably most often spontaneously evacuated and drained without interference, or under simple cleansing treatment directed to the nasal chambers, but cases occur which do not right themselves and which demand interference. The symptoms of these cases are, in order of frequency, pain expressed as localized neuralgia, frontal or unilateral headache, pain or sense of pressure in one or both eyes, and—very important but quite rare—a marked and distressing foetor, which is noticed alike by patient and those around the patient. The foul smell may be constant but is often intermittent, being entirely absent for hours only to come on again suddenly. Signs of pus may be seen in the nasal chamber, but the source of the pus is rarely made out unless one happens to be examining at the time of the periodical discharge into the nose of pus and foetid gas. Illumination in these cases is always positive and the affected will appear perfectly dark with no pupillary reflex. Cases of double acute empyema must be very rare, as reports of such are not often seen. The appended report is of a typical case of this condition.

Miss C. R., aged 30. Referred for nasal examination. History of attack of la grippe four weeks before, recovery in two weeks, except dull headache and pain about the eyes; one week previously began to be sensible of a marked foetor about the nose, this was intermittent and the smell occurred about four times in the twenty-four hours, lasting for about an hour and then passing away. Patient was very anxious about it, being nervous and hyper-sensitive. Examination reveal-

ed slight swelling and redness of membrane of both chambers, right chamber contained a few flakes of dried discharge which resembled thick muco-purulent material, but no definite point of discharge could be made out. The middle turbinal of the right side appeared to be swollen more than the inferior of the same side and more than the middle turbinal of the opposite side. The patient denied any sudden discharge from either nostril at any time. The teeth of the upper jaw appeared to be sound, and no tenderness could be made out by tapping them. Illumination showed the right side absolutely dark, while the left illuminated brilliantly and showed a good pupillary reflex. A diagnosis was given of acute empyema of the antrum and operation advised. Consent being given, the puncture was made as described above, and a half ounce of extremely offensive pus was washed out of the cavity. The cleansing with sterilized salt solution was every other day for five treatments and three times after at longer intervals, the last interval being eight days. The fluid returning clear on the last washing, the tube was removed and the patient discharged cured.

This case was undoubtedly caused by the entrance into the antrum through the ostium maxillare of some material containing pyogenic germs, then the swelling of the membrane around the opening caused retention until the normal secretion of the cavity became changed into pus. It may be claimed that this case would have evacuated and cured itself if left alone, and this may be true, but in the opinion of the writer it is good practice to operate in such cases where so much relief can be afforded with so little pain and practically without danger.

*Chronic empyema.*—It is in this class of cases that this simple operation finds its widest range of usefulness. There are hundreds of cases of this condition going about without treatment, but with constant suffering, or under the care of some

of our advertising quacks who "cure catarrh no matter how caused or how long standing." These cases can never be cured until the seat of disease is recognized and energetic treatment directed to it. There are two principal causes of the chronic cases, neglect of an acute case as described above, and dental caries or abscess. By far the majority of cases are due to the last named cause, but that there are more cases than is generally admitted which are due to the first cause the writer is firmly convinced.

The symptoms of chronic disease of the antrum vary widely, and the condition is often so carefully masked that it requires the puncture to determine the true condition of the cavity. A constant or periodic discharge of pale lemon colored pus, usually from one side alone, is one of the most common symptoms, and yet even this may be wanting according to the statement of the patient, the pus being either swallowed or drawn back into the throat and expectorated. A sensation of having a bad cold in the head on one or both sides is a common complaint, headache, eye-ache, foetor, and neuralgia make up the most common and important of the list. Study of the appearance of the nares will afford important information, a comparison of the two sides of the same nose will reveal the fact that one is subjected to some severe irritation while the other is not, and that one has pus while the other has not, and the condition of the middle turbinal is usually that of sub-acute inflammation with much swelling. Pus may be seen to lie in the middle meatus, and if wiped away it will promptly reappear when the patient holds his head to the opposite side and sneezes or coughs. Now, if illumination shows the same side dark while the other is well illuminated the puncture is indicated. There are cases in which but few of these symptoms are present, but if the cardinal ones, of pus in the middle meatus and darkness on illumination, be present the writer does not hesitate to puncture

and syringe out the cavity with the warm sterilized salt solution, which can do no harm even if pus is not found. The treatment consists in washing out the cavity by means of the permanent and silver wash tubes at gradually increasing intervals, and after drying the cavity, by blowing air through it, aristol alone or with stearate of zinc should be blown into the cavity. This treatment persevered in will cure a large percentage of all cases not complicated by growths of the antrum or extensive caries of bone. The appended report is typical of this class of cases.

Mr. L. E., aged 30, miner. Came complaining of inability to breathe through his nose, and of profuse discharge from the left side of the nose. His eyes pained him much and headache was frequent and severe. Examination revealed a sodden, watersoaked condition of both turbinals of the left side, pale in color; the membrane of the middle turbinal was so relaxed that it hung down in folds almost to the floor of the nose, but was not distinctly polypoid as yet. The mass completely filled up the space of the meatus and rendered breathing through it impossible, no pus could be seen at this time. The loose dependent tissue was all removed with the snare, and pus could be seen coming from beneath the anterior part of the middle turbinal, illumination gave a perfectly dark side, and the puncture was advised and immediately done. A large amount of pus and debris was washed out and the inner surface covered with a layer of aristol. This treatment was continued for about two months, when the tube was removed and the case discharged cured.

*Atrophic disease of the Antrum.*—In venturing to describe this condition, the writer feels that there may be question raised as to the real pathological condition of the antrum, but as there has been no opportunity as yet to verify the view by autopsy, a brief account may not be out of place in order that others may look for the same condition in their atrophic cases,

if the connection has not already been noted.

Three cases of ordinary atrophic rhinitis have been under treatment for some time, but have failed to respond to the treatment as is usually expected, in fact the discharge instead of being lessened in amount appeared to be actually increased and to become more fluid, though the usual sized crusts never failed to appear at each sitting. It then occurred to the writer that there must be some accessory source of all the material which the patients presented daily beside the nasal chambers proper. Illumination proved negative, as each side responded almost equally in each case, but the light was not transmitted with the brilliancy usual in the ordinary run of cases. Pus could always be found in the middle meatus even after careful cleansing, slight in amount and very thin in consistence. Consent being obtained the puncture was made in all three cases, and to the surprise of all quite a considerable amount of dried material was washed out of each antrum; this was greenish and in small hard lumps and could still be brought out after a quart of water had been passed through the cavity. Some thin yellow pus was also obtained at each washing. The appearance of the material washed out and the collective history of the cases has given reason to believe that the same atrophic condition which takes place in the nares may also affect the antrum membrane, either by extension or possibly infection, and it is quite possible that this may be the case in many of the "old chronics" which frequent the same dispensary for years without perceptible improvement.

The treatment of these cases has been, on the whole, quite satisfactory, but has been systematic and thorough. Each cavity has been washed out from once to three times a week with warm Seiler's solution, this being used for its stimulating properties, and aristol has been applied thoroughly at each washing. A solution of acetanilid in albolene was used

as a spray in one case with very fair results, but experience leads to the belief that after washing out the cavity and drying as well as possible by blowing air through it, the dry treatment is the best, and that the application of dry aristol with or without stearate of zinc will yield the best and most prompt results. In the cases so treated, there was a marked diminution in the amount of material washed out of the antrums after a few weeks treatment, and the size and consistence of the crusts in the nasal chambers were altered for the better. Although as yet no cure of any of these cases can be claimed there is good reason to believe that cure may follow a persistent trial of the treatment. The following report is typical of the three cases under observation.

Miss J. A., aged 19, domestic. Reported for treatment for "catarrh," complaining of much and severe headache, eye-ache, dryness of the throat, irritative cough, and obstruction of the nose by crusts which were expelled with great difficulty about every other day. The nasal chambers were wide and the inferior turbinals were shrunk considerably, but the middle turbinals were both enlarged to the point of contact with the septum, huge greenish crusts were found at each visit. Careful study of the case failed to define any point of leakage into the nose; there was a sense of pressure and vague pain referred to both eyes, but no other sign of ethmoid disease. After two months treatment without much if any improvement it was decided to explore the antrum of one side which appeared upon illumination to be slightly darker than the other; this was done and a large amount of greenish hardened material was washed out in small pieces, also a very little fluid pus; there was the characteristic odor of atrophy. The other antrum was explored shortly after and the same condition was found to exist.

Treatment, on the lines outlined above, for about six weeks has availed to diminish the amount washed out every alternate

or fourth day by at least two-thirds, and to diminish the crust formation markedly; the headaches have stopped, as have the eye-aches, and the general health is improved, probably through a restoration of nasal respiration. A cure may confidently be expected in this case.

Allusion to growths and other disease of the antrum to which this operation could not be applied, has been purposely avoided, the object of the paper being to indicate the cases in which this excellent operation might be expected to do good in the way of diagnosis and treatment. We are indebted to Dr. Freeman for giving us an operation which is so useful to suffering humanity, but which is painlessly and easily done and practically without danger in competent hands.

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### THE CLINICAL APPLICATIONS OF BENZOSOL.

By J. V. KOFRON, M.D.,

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Some months ago my attention was called to the remedy which forms the subject of this paper, and as I was aware that it had been employed extensively in Cleveland, and by several of our most accomplished clinicians, I was sufficiently interested to submit the drug to a thorough and careful trial in my service at St. Alexis Hospital, and also in several cases in private practice. The results which I obtained have been of such a decidedly favorable character as to induce me to prepare this report for publication.

For the benefit of those who are not familiar with the nature of benzosol, I should state that this drug is a chemically pure benzoate of guaiacol, containing approximately 54 per cent. of the latter agent. It occurs in the form of a slightly pinkish, finely granular powder, which is entirely devoid of taste or odor; it is practically insoluble in any of the ordinary menstrua and is perfectly administered in the form of powder, pill or cap-

sule. Benzosol passes unchanged through the stomach and is split up into its component parts (benzoic acid and guaiacol) by the alkaline juices of the intestine.

This fact accounts for two of its principal advantages.

1st. The avoidance of the unpleasant eructations which so frequently occur after the administration of pure creosote or guaiacol, and

2d. The liberation of the antiseptic guaiacol in the intestine where its action is especially desired in the treatment of septic conditions of the intestinal tract attended with fermentation.

In the treatment of *tubercular affections*, the administration of benzosol affords a most pleasant and efficient method of obtaining the constitutional effects of creosote without the many unpleasant features of the latter drug. As it is entirely free from unpleasant taste or odor, and is almost invariably retained by even a sensitive stomach, one can by means of this remedy push the dose much higher than when creosote itself is employed.

The conditions for which I have prescribed benzosol with gratifying success are as follows: Incipient pulmonary tuberculosis, chronic bronchitis, tubercular diarrhea, chronic gastric catarrh, intestinal catarrh with flatulence and typhoid fever.

In cases of *Incipient Tubercular Phthisis* with considerable cough and expectoration, slight evening elevation of temperature, loss of appetite, furred tongue, etc., the administration of benzosol gr. iv. four times a day serves to relieve the cough, reduces the amount of expectoration, brings down the hectic temperature, clears the tongue and increases the appetite.

Similar results have been observed in cases of *Chronic Bronchitis* in which severe cough, profuse expectoration and dyspeptic symptoms have been predominant features.

Very surprising to me have been the results obtained from the use of benzosol in the treatment of cases of *Tubercular Diarrhea*, in which the remedies usually ad-

ministered proved of but little value. In doses of four grains every four hours, it seems to have an almost specific action in checking the exhausting diarrhea and in improving the digestion and general condition of the patient.

In a case of *Chronic Gastric Catarrh*, with loss of appetite, insomnia or disturbed sleep, a feeling of distension over region of stomach and an almost continuous eructation of gas, benzosol proved of decided benefit after the failure of other methods of treatment.

John S., aged 46, occupation, sod-layer, came to me April 1st, 1896, complaining of gradual loss of weight, sleep and appetite, and rather obstinate constipation. His most prominent troublesome symptom, however, was a feeling of extreme abdominal distension accompanied with an almost continual eructation of gas from the stomach, particularly after eating, which had been getting progressively worse for the last seven or eight months. He would frequently vomit a short time after meals, the material rejected being of a greenish, frothy and sometimes slimy nature, but almost devoid of taste.

Physical examination showed a man of medium height, weight about 130 pounds, somewhat emaciated, pale and fretful. Epigastric region distended, tympanitic and painful on pressure; rest of abdomen slightly tympanitic but not painful. Heart and lungs in normal condition. Tongue evenly coated with a white, thin film. Temperature, normal; pulse, 80. Examination of stomach contents revealed a yellowish-green, somewhat frothy fluid without much odor and with a faintly acid reaction.

After this somewhat incomplete but clinically sufficient examination, I diagnosed chronic gastric catarrh. I ordered a strict milk diet, and prescribed as follows:

R. Salol..... gr. iij,  
Pepsin..... gr. v,  
Sod. Bicarb..... gr. ij.  
M. et ft. pulv. No. I.  
Sig., One powder four times a day.

This treatment was continued until April 13th when, owing to lack of improvement, I discontinued the powder and prescribed

R. Benzosol..... gr. iij,  
Pepsin..... gr. v,  
Sacch. Lactis..... gr. v.  
M. et ft. pulv. No. I.  
Sig., One powder after each meal.

also aloin, belladonna and strychnine tablets for constipation when necessary.

From this time on, the patient rapidly improved, the distension was relieved, eructations became less and less frequent, appetite returned coincidentally with the enlargement of his dietary, until on May 18th he reported himself entirely free from all gastro-intestinal symptoms, appetite excellent and general health as good as at any time during his life. I am confident that benzosol is responsible for this rapid and progressive improvement, as pepsin alone has never succeeded in my hands.

In *Intestinal Catarrh with Flatulency*, benzosol speedily and effectually checks undue fermentation, and it also affords a valuable intestinal antiseptic in cases of *Typhoid Fever*. In three cases of this latter disease in which this remedy was used exclusively, the following satisfactory results were noted. Temperature never rose above 103°; tongue quite clean and usually moist; none of the patients exhibited tympanites or suffered from diarrhea, and none of them suffered from a relapse.

I have been quite anxious to test the efficiency of benzosol in the treatment of *Diabetes Mellitus*, as advocated by von Jaksch, Piatkowski, and J. Blake White of New York City, but have not as yet had the desired opportunity.

In conclusion, I wish to express my belief that we have in benzosol

a valuable substitute for creosote in pulmonary affections,

a safe and efficient intestinal antiseptic for the treatment of gastro-intestinal disorders attended with fermentation, and

a useful remedy for the purpose of sterilizing the bowel in typhoid fever.



## REPORT OF CASES TREATED WITH SALACETOL.

By Dr. J. D. ALBRIGHT.

I have recently been employing salacetol, a product of salicylic acid and acetol, and my success with it prompts me to report a few cases from practice. This drug is in many respects similar to salol, and yet presents differences, in that, in salacetol the beneficial qualities of salol are enhanced, while the adverse qualities are entirely absent. In the administration of salol, when untoward symptoms presented themselves they were in almost every instance the effects of the phenol contained therein, which as before stated, finds no place in salacetol. While not wishing to under-rate salol, or say anything against its use, I am at the same time confident that salacetol has in my hands effected cures that salol could not have approached. It is not for me to dilate on the therapeutic range of salacetol in this paper, or to dwell at length upon its mode of action, or elimination from the body, as others have previously published reports on that line, as current medical literature\* will show. Instead, I will report several cases, with their treatment:

Case I.—Case of an old lady, aged 77, and comparatively feeble. Was treating her for gastric irritability, anorexia, constipation, and insomnia, with a varied degree of success. In course of time, however she became physically as well as could be expected for one of her age. Shortly after, however, she was taken with a most obstinate form of diarrhea, and I was called in. I gave her first, bismuth salicylate and sub-nitrate, without effect. This was followed by a dose of castor oil, which in a measure checked the diarrhea; but the next day it returned with all its vigor and sever-

ity, as many as 36 stools being made in the 24 hours. I had withheld all solid food from the start, and now began the use of one of the prepared foods, also prescribing tablets of opii, gr. i, and plumbi acet., grs. i ss. One to be taken every two hours, until either relief or stupor intervened. After ten tablets were taken she was very drowsy, and showed other signs of being under the influence of the opium, the only difference in the diarrhea being, that she now passed her stools unconsciously and with such frequency as to render it indeed a grave case. At this stage I procured an ounce of salacetol, and at once prepared 30 grs. of it in a mixture with an ounce of castor oil, and administered it to her, ordering all food to be suspended for 10 hours. At the end of this period the stools had noticeably decreased, and I ordered boiled milk to be given. On the following day I found her with a new hope beaming from her face, and was indeed happy to learn that in the preceeding 12 hours, she had had but 4 passages. I now gave her a 10 grain powder of salacetol alone, with the result that no other treatment was necessary to restore her to her former state of health.

Case II.—Child, male, aged three years, began with vomiting, diarrhea and a high state of nervousness. Found the temperature 102, pulse 148, was vomiting incessantly, and diarrhea profuse and very offensive, slight convulsive movements were apparent, and a cold sweat began to appear. I at once gave the child lime water and bismuth for the vomiting, and bromides for the nervous manifestations. Improvement in these symptoms was not apparent until after 12 hours of active treatment. Vomiting had now ceased, and the nervous symptoms had disappeared, but the diarrhea was extremely severe, passages every half hour, and at times more frequent. Gave a powder of salol, bismuth, and opium every hour for six hours with no benefit. Nothing in the way of nourishment having been given

\* See Gould's American Year-book of Medicine (p. 1069), Shoemaker's Materia Medica and Therapeutics (p. 736), and others.

from the beginning, I now ordered Just's food, to be prepared according to directions, and shortly after I gave the boy a 10 gr. powder of salacetol, dissolved in castor oil. As in the previous case, the diarrhea was checked within six hours, and the following day found my patient very much improved. I ordered three grain powders of salacetol to be given every three hours, and was gratified to have the pleasure of seeing him make an uninterrupted recovery. As I lost a similar case last summer, this case proved very interesting to me, and also proved the superiority of salacetol over the drugs mentioned, which were also used in my case, that ended fatally, last summer.

Case III.—Young man, age 29, subject to periodical attacks of rheumatism of the joints; was called to treat him and found it had attacked him in both knee and ankle joints, with vague pains throughout the body. Ordered him to bed, between woolen blankets, and made a vigorous application of chloroform liniment to the affected parts, and enveloped them with cotton. As I had previously treated him with the salicylate of soda, as well as the local treatment just mentioned, with the result of a 10 to 14 days' siege before the symptoms had so much been relieved as to allow him to follow his duties, I concluded to try salacetol, and ordered a 10 grain powder, to be taken every three hours, for three doses, and then every 6 hours, until the end of the 24, when one was again giving every three hours, as before. After the second dose he expressed himself as better, and said that the powders were better for the pain than the other medicine I had been in the habit of giving him. After 8 days of this treatment he resumed his duties, which were light, and said that he was more quickly and more entirely free from what he chose to call "after-pains," than he ever before had been.

I believe that an extended use of this drug by the profession will warrant the assertion, that it is in every way more efficient than salol, and has the additional advantage of being free from toxic effect.

Akron, Pa.

## A NOTE ON THE USE OF PEROXIDE OF HYDROGEN.\*

By W. O. ROBERTS, M.D.,  
Professor of Surgery and Clinical Surgery in the University of Louisville; Member of the Louisville Clinical Society, etc., Louisville, Ky.

One week ago I was called to see a patient, and was given the following history: A man aged forty-six years, four or five years ago noticed a small swelling, lump or tumor in the right side of his neck, which gave him no pain, but steadily and gradually increased in size until two years ago it attained the size, he says, of a large egg. He then consulted Dr. J. M. Krim, who had him removed to the St. Joseph Infirmary, and with the assistance of Drs. Satterwhite and Cartledge operated upon him. He says, so far as he knows, they laid open this tumor and that it proved to be an abscess. In about two weeks after the operation the wound entirely healed, but in the course of a month afterwards the tumor re-opened. The first operation was performed in August, and early in the fall Dr. Krim again opened the abscess. Several times after that recurrence took place in the space of a few weeks or months, and it was opened again and again. Last January it was about the size of a guinea egg, he says, and he consulted the doctor who called me in consultation to see the case. This doctor opened the tumor and evacuated about a half ounce of pure pus. Afterwards he washed it out every day with peroxide of hydrogen and treated it antiseptically.

At three o'clock last Tuesday he called at the doctor's office, and upon examination a very small fistula was found; it was large enough to admit an ordinary probe. The probe went towards the upper part of the larynx about  $1\frac{1}{2}$  inches. The doctor had a small syringe to hold about a dram which was loaded with peroxide of hydrogen and injected into the opening. The opening was so small that he could scarcely introduce the nozzle of

\* Reported to the Louisville Clinical Society, and contributed exclusively to the AMERICAN THERAPIST.

the syringe into it. Immediately upon removal of the syringe the foam boiled out, and the man complained of intense pain on the opposite side of his neck, and said he felt the fluid go through to the opposite side. He said that before the injection he had only occasional pain, but after the peroxide had been introduced he had almost continual pain. The doctor went on his rounds, and at seven o'clock he returned to his office and found an urgent call to see the patient. He found the man in intense pain, not so much at the point of the original fistula but on the opposite side of the neck, and a swelling had appeared on the opposite side as large as half the segment of an egg, very deep seated and exceedingly sensitive to pressure. The man's voice was very husky, and he had great difficulty in swallowing. He held his neck perfectly still, with his head thrown back, lying flat in bed; any attempt at swallowing or moving his head gave him great pain.

When I saw him at eight o'clock there was a little oozing of dark blood from the fistulous tract, and I was told there had been slight oozing there ever since the man had reached home, which he did half an hour after the injection was made. There was a swelling on the opposite side of the neck of considerable size, and when the fingers were pressed upon it great pain was evinced. His pulse was then 84 to the minute; the doctor had given him  $\frac{1}{4}$  grain of morphine hypodermatically at seven o'clock, and another at eight o'clock. The man's conjunctivae were red, his pupils were contracted. His voice was husky, great difficulty in swallowing, no trouble however with breathing, and there was no elevation of temperature. I introduced a grooved director into the fistulous tract and let out about a teaspoonful of very dark blood. The man lived in a cottage and there was no light except that from dirty lamps. He expressed himself as being somewhat relieved after evacuation of this dark blood from the fistulous tract, and after emptying the tract with a

pair of forceps I introduced a small piece of iodoform gauze and told the doctor I would see the patient again the following morning, or if he grew worse to let me know and I would come at once. At ten o'clock he telephoned for me, but I did not receive the message until a half hour later and reached the patient at eleven o'clock. I found a very marked change for the worse in the condition of the man, both local and general. His pulse at that time was 130; his skin was pale; swelling of the neck much increased; pupils were very much more contracted; conjunctivae red; he was unable to swallow at all and the saliva was running from his mouth; he could not talk, his tongue was pushed up to the roof of his mouth. The swelling under the tongue looked exactly like an enormous ranula. There was still great tenderness all around the neck, and I could get by pressure no evidence of gas in the tissues, that is, no crepitation on pressure. There was a great cake under the chin on the opposite side of the neck and also at the region of the fistulous opening. I saw that the man was in a very critical condition and I advised the family of the fact, told them the only thing to do was for me to lay open these lumps and enlarge the original fistulous opening, which was consented to at once. I split the original tract, making it nearly two inches in length, and some dark blood came out of it; then I took a pair of blunt artery forceps and passed them in the neck into the swelling under the chin, but still could obtain no relief. I then made a cut of one inch or more under the chin, quite deep, and another on the opposite side of the neck, going down deep and letting out quite a lot of bloody serum. There was no extravasation of blood, but free bleeding from the vessels that were divided and a considerable oozing of serum. I let it bleed very freely and in a little while the swelling of the tongue subsided so that the tongue assumed nearly its normal position. I waited half an hour after the incisions

were made, then gave him some water which he was able to swallow. I then left him with directions that he was to keep bags of gauze wrung out of a hot carbolized solution, 1 to 40, around his neck, these to be changed often so as to keep them hot all the time. I saw the case no more until to day, but had a daily report of it from the doctor in charge. The man's improvement was steady, and when I stopped by to see him to-day he was getting along nicely, being able to sit up and looking very well, though there is still some induration under the chin and also around the site of each incision. There has been very little pus coming from any of these openings, and none from the one on the left side, but a great deal of pus from the original fistula upon the right side.

#### DISCUSSION.

Dr. T. P. Satterwhite :—My recollection is that I saw this case with Dr. Krim some time ago. There was, when I saw the case, a very large tumor or induration extending up underneath the chin, even back as far as the angle of the jaw. Over the central portion of the tumor fluctuation was easily made out, and there was unquestionably a considerable amount of pus within the sac. Dr. Krim took him to the Infirmary and made a free opening and a large quantity of pus was liberated. It struck me then that it was simply one of those cases of disease of the lymphatic glands; there was nothing in the case to indicate specific trouble. The opening made was so long that an inspection of the cavity could be made very readily, and the tissues were in an exceedingly unhealthy state. We felt at the time that the condition of things was such that it would not be well to dissect out the sac, that it was so deeply situated and there were so many large vessels adjacent to it, that dissection was out of the question, so we decided to simply incise and drain, hoping by that means irritation would cause obliteration of the sac. Swelling rapidly subsided, and I think when I saw

the case with Dr. Krim some months later it was infinitely smaller, about the size of a small egg, but there was unquestionably some pus then. Possibly I saw the case once afterwards without Dr. Krim, and I then suggested that he see the doctor and let him re-open the tumor and put in a drain, which I think was carried out. I saw no more of the patient after that time.

Dr. J. M. Krim :—I remember the case very well. The trouble has existed for at least twelve years. The first time I operated, fully half a pint of pus was evacuated. The wound was kept open by packing lightly with iodoform gauze for two weeks; the tumor subsided rapidly to about the size of a marble, and he had no further trouble until three or four months afterwards. The tumor then recurred and I opened it again and curetted the cavity, taking away a considerable quantity of a grizzled-like substance from just inside the opening. I irrigated the wound with the chloride of zinc, packing the cavity with iodoform gauze to keep the wound open for two weeks. The wound was allowed to gradually close and I did not think there would be any further trouble. I saw him two or three months later, when the tumor was very small, and he made no further complaint. I heard no more of the case until Dr. Roberts reported to-night.

Dr. S. G. Dabney :—The point of most interest in this case is the effect of the peroxide of hydrogen. The case is of interest on that point regardless of previous disease. It would certainly seem as if the man's trouble had been induced by injecting peroxide of hydrogen into the narrow fistula from which it could not escape, the oxygen being set free the gas diffused itself through the tissues. While Dr. Roberts could not feel any crepitation, I cannot but think that the swelling was due to gaseous distension. In my opinion the gas from the peroxide of hydrogen fully explains the subsequent trouble following its injection. None of us now use this agent much about the eye. When injected

into the tear sac if a little of the peroxide gets on the conjunctival surface it produces intense congestion. I have seen ecchymosis and the appearance of hemorrhagic spots following its use. I think there is a great deal of danger to be apprehended from injecting peroxide of hydrogen where there is not abundant opportunity for its ready escape.

Dr. T. C. Evans :—Very soon after the introduction of this agent I used the injection of peroxide in a small abscess sac on the arm of my own person, which was followed by a violent cellulitis of the arm up as far as the elbow; it was exceedingly painful and presented a condition very much like what Dr. Roberts has described, except the location was entirely different. Not only do you get immediate inflation of the tissues by the free oxygen if you have pus as well as blood infiltrated into the sac, but you also get added to this the production of cellulitis which is often marked and is developed as quickly as in the case Dr. Roberts reports; it comes on at once. I think with Dr. Dabney that there must have been considerable infiltration, the tongue being pushed up and not furnishing the proper amount of resistance, but there would hardly have been such an extensive infiltration with a solid surface above to have pressed upon. I am inclined to think peroxide of hydrogen is an over-estimated agent, and should always be used with exceeding care. I have never used it about the eye. I have been told by another specialist in eye diseases of two cases where peroxide of hydrogen was used in gonorrheal ophthalmia and in each case the eye was lost. In reporting the cases the gentleman said he regarded peroxide as a dangerous agent and referred to the bad result from its use in these two cases. I remember having seen it used once in a peri-tonsillar abscess, and while quite a large opening was made, for a few minutes it looked as if the man would suffocate. An opening was made sufficiently large to clear itself within a few minutes after the injection. I have never seen peroxide injected into the tear sac.

Dr. S. G. Dabney :—I think such an accident as Dr. Roberts relates could hardly occur unless there was a rupture of the abscess sac, in which event the oxygen could get out into the tissues surrounding it. Peroxide is seldom used in tissues about the eye, and when used it should be diluted to about one in four parts.

Dr. W. H. Wathen :—About a year ago I had an abscess just above the line of union after amputating the breast for carcinoma. The opening was small and apparently the pus cavity was not large enough to contain more than  $\frac{1}{2}$  to a teaspoonful of pus and nearly all of it had been pressed out. Then to thoroughly cleanse the cavity I injected through the small opening about ten drops of the peroxide of hydrogen (Oakland). As I withdrew the syringe, some solid matter obstructed the external opening of the abscess cavity and immediately there was decided swelling, extending from this opening up to the clavicle, and for considerable distance around there was extensive gaseous distension. I let it out as soon as I could, but it seemed impossible to eliminate it entirely, and swelling continued for twenty-four hours. There was extensive suppuration from it and healing was delayed for probably a week. It impressed me at once with the importance of never using peroxide of hydrogen in any cavity where there is not free access because it is capable, I feel, of doing serious harm. I am sure in the case reported by Dr. Roberts the quantity injected was considerable and obstruction to the over-flow forced it through the connective tissue into different parts of the neck. I believe that was the primary cause of the trouble. It acts upon the blood very rapidly when it comes in contact with it causing it to become black.

Dr. W. O. Roberts :—I reported the case simply to show the danger of using peroxide of hydrogen where there is not a free outlet for it. I am satisfied that the peroxide caused rupture of this fistulous tract and allowed escape of gas through the tissues. The reason I did not get crepitation was because of the depth of the tumor itself and also because the parts were so exceedingly sensitive that I did not make pressure sufficiently firm to elicit crepitation. A number of cases of death have resulted from the injection of peroxide of hydrogen into the bladder and into the pleural sac in empyema, etc.

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## Editorial.

### THE ABOLITION OF THE GARGLE.

MR. LENNOX BROWNE, Senior Surgeon of the London Throat Hospital, recently addressed the British Laryngological Association, suggesting that the time had now fully come when the gargle should be abolished in the treatment of diseases of the throat. He aimed to show that fluids were not brought into effective contact with the posterior surface of the pharynx, if used as gargles in the ordinary way. The editor of the *Medical Press and Circular* is inclined to support this view, with the following argument: He says, "It is to be feared that the time-honored gargle has outlived its usefulness, and that even its antiquity, coeval though it be with the poultice and the leech, cannot blind us to the fact that it necessarily falls short of the mark when the diseased tissues are on a plain behind the posterior pillars of the fauces. Even a casual study of the conditions which obtain in the act of gargling as usually understood, will show that the fluid is kept in front of the lowered soft palate, so that it is impossible for any effects to be exercised on tissues posterior to that structure. A gargle, as ordinarily employed, is, therefore, only a mouth wash. Under these circumstances, it is really surprising that it should have been reserved for Mr. LENNOX BROWNE to enter a protest against the continuance of a

practice which is not only useless but, in presence of actual inflammation, is exceedingly painful, and may be injurious."

Mr. BROWNE describes, however, another method of gargling, using the term gargling in the sense of trickling a fluid through the mouth into the pharynx which is free from one, at any rate, of the objections already alluded to, viz., the method of VON TROELSTCH, for which the directions are as follows:—"Take a tablespoonful of the gargle in the mouth, hold it in the back of the throat with the head thrown back, then, closing the nose with the finger and thumb to prevent entrance of air, open the mouth and make the movements of swallowing without letting the liquid go down the throat."

By this means the medicated fluid can, it is true, be brought into contact with the pharyngeal tissues, but the process is by no means easy to carry out in an effectual manner, and in the majority of instances it is quite out of the question. Gargles, again, are quite inadmissible in cases entailing the dorsal decubitus, such as diphtheria, in which cardiac failure has to be sedulously guarded against.

Another obvious objection to gargles is, that they must perforce comprise only the most harmless ingredients, if we are to avoid subjecting the patient to the danger of poisoning in the not improbable event of any portion of the fluid escaping control and finding its way down the esophagus. Moreover, solutions thus employed must not contain any considerable quantity of an active ingredient, because they will come into contact with vastly more healthy, than diseased, tissue. The moral is, that gargles should give place to more scientific and precise methods of applying topical agents to diseased surfaces in the throat, especially in children, to whom gargling of any sort is virtually an impossibility. The future, therefore, is toward irrigations, sprays, lozengers, and, in the case of children, to medicated confections. W.

## Current Literature.

**EXTRAVASATION OF URINE SUCCESSFULLY TREATED BY BARR'S TANK-BED.**—The *London Lancet* states that Mr. Chauncy Puzey, of Liverpool, has recently exhibited at the Medical Institution of that city a patient who had made a good recovery under a method of treatment not usually mentioned in our text-books. It is a means of treatment which has found acceptance in some hospitals for extensive sloughing as the result of burns of a large portion of the body, as well as in cases of sloughing after injury.

The patient, a male aged 48 years, was admitted to the Northern Hospital with a history of stricture for many years. He suffered from swelling of the scrotum and penis for about a week, but urine was passed with increasing difficulty until the morning before admission. There was great swelling of the scrotum and penis, the swelling extended over the pubis and into the right groin, which was dusky red in color. A large portion of the scrotum was black, looking indeed like decomposing liver. There was great constitutional disturbance. An hour after admission ether was administered and a free incision was made down the middle of the scrotum and perineum; a large quantity of foul-smelling urine and pus mixed with dark blood flowed away freely. The scrotum was so rotten that it was torn, and two large pieces were cut away, the tunica vaginalis of one side being thus completely exposed. Hemorrhage was checked by the cautery-iron. On the following day, it was found necessary to freely incise both groins and the abdominal walls towards the loins; the fascia was found to be sloughing, and the muscular structures somewhat involved. Three days after admission it was found quite impossible to keep the patient clean in any way, so he was moved into one of Dr. Barr's tank beds, and this was without doubt the means of saving his life.

He was kept in it for a week, soaking in boracic acid and sanitas solution, and by the end of the week all the sloughs had separated. A full-sized catheter could now be passed all along his urethra, and eventually he made a capital recovery. Five weeks after admission, Mr. Puzey had to perform a plastic operation to cover in the right testicle, which was completely bare of covering except of tunica vaginalis.

**THE LIGHTNING PAINS OF TABES TREATED POSTURALLY.**—In *Therapeutische Monatshefte*, Dr. Blondel reports concerning a case of syphilitic tabes, that he was able to effect a cure of unendurable and obstinate lightning-pains in the following manner: He lay upon his bed, drew his thighs upon his abdomen, and bent his legs so that the knees and chin were brought together. Then a strap was passed around his neck and popliteal spaces, tightened, and fastened by the patient himself, who remained in ball-like position for five minutes. After eight days of this treatment the pains disappeared. Upon their return the method was repeated once each month. For two years pains have been absent. This procedure, the result of which is to lengthen the spinal cord, does not present the danger of luxation of the cervical vertebra and does not require an especial apparatus.

**RECENT THERAPY OF MIGRAINE.**—The legion of proposed remedies for the cure of migraine indicate the difficulty of hitting upon a rational treatment. Seguin advises as a prophylactic treatment, Indian hemp in the dose of one-fifth grain given three times a day in pills, associated with iron and arsenic; it should be continued for some time. The best treatment for the attack, when depending on nervous causes, is caffeine and antipyrine; caffeine two grains, antipyrine 10 grains, to be renewed in an hour if necessary. Salicylate of soda in the dose of half a drachm is almost a specific where the headache is derived from a gouty or rheumatic dia-

thesis. Bromide of potassium was believed by Charcot to be the remedy, *par excellence*, of the ophthalmic form. A writer in the *Press and Circular* closes up an article on this subject with the following hint: "Many medical men prescribe with success, exalgine as follows :

Exalgine.....	1 grain
Rum.....	1 ounce
Syrup.....	1 "
Water.....	4 ounces

A tablespoonful three times a day."

In the *Presse Medicale*, Dr. Critzman states that he employs what he is pleased to call "the rational mode" of treatment, which is partly local and partly internal, as follows :

1. The hyperesthesia of the painful region must be diminished by aspersion with Seltzer water. 2. Immediately afterward energetic pressure must be practiced on the temples. This pressure will then be bilateral. In order to compress the blood-vessels, their exact site should be determined; a common cork is then cut into round pieces, which are applied to the arteries, and a moist bandage of gauze is passed around the head several times. 3. Every two hours a capsule containing the following mixture should be given:

Sparteine sulphate.....	0.3 grain,
Caffeine.....	1.5 grain,
Antipyrine.....	8.0 grains,

Four of these capsules are to be given, even though the pain may have completely disappeared. 4. If there is gastric intolerance, which frequently occurs, this mixture may be given in the form of an enema.

**SALACETOL AS A REMEDY IN RHEUMATISM AND IN INTESTINAL DISEASES.**—In the *Deutsche Medicinal-Zeitung* for March 12, there is a brief summary of an article which is credited to the *Bolletino della Accademia di Medicina di Genova*, but the author's name is not mentioned. He says that in the organism salacetol splits up into salicylic acid and acetol, and that the acetol is changed into acetone, which is less hurtful than the phenol derived from salol. While salacetol has no ef-

fect on soluble ferments, it exerts an inhibitory and destructive influence on the development of morphological ferments. In acute articular rheumatism, given in a dose of thirty grains, it lowers the temperature and soothes the pain. Both actions begin to show themselves in an hour and a half, or two hours, and last for two or three hours. The author considers the remedy useful in intestinal affections as well as in rheumatism, but the abstract contains no mention of what intestinal affections he has in mind.

**SOMATOSE.**—Dr. H. Taube, in *Belge Medicale*, reports three cases wherein this remedy accomplished unexpectedly favorable results. *1st*, a youth, long treated for an obstinate syphilide, and finally cured of this by energetic treatment with iodide of potassium and intramuscular injections of calomel, had become cachectic to an extreme degree. Mercurial stomatitis and salivation rendered from the time all alimentation impossible. Milk and ordinary peptones were not borne, and increased the distaste for food and the diarrhea. Rapid recovery in every respect ensued with soups, gelatinous and farinaceous, to which somatose, 10 gr. per day, had been added. *2d*. A woman attacked with pericarditis entailed by acute articular rheumatism. The great prostration, feebleness of pulse, etc., forced the administration of tonics even during the acute stage. Wine, brandy, and somatose, the latter mixed with beef-tea, were given. Her strength then markedly improved, even during the rather long period which the exudate took for reabsorption, and during which digitalis and pot. acet. were given and fly blisters were applied to the chest. Case III Taube thinks especially noteworthy. It was that of a woman become anemic through repeated pregnancies, in whom at the fifth month of lactation the secretion failed, and lancinating pains in the breasts and back appeared. The infant, placed on diluted cow's milk, was soon reduced to



an extremely low state through dyspeptic diarrhea, followed by bronchitic signs, cough, fever, inspiratory dyspnea, vomiting, albuminuria, etc. Somatose given to the mother in milk and farinaceous soups caused speedy disappearance of the pains and return of breast secretion. The infant from the day of its resumption of natural food hastened to recovery.

**KOSOTOXIN.**—Handmann, in *Centralblatt für innere Med.*, April 4, has investigated this constituent of koussou flowers. He finds that it acts as a poison on muscular tissue, but has only a very slight effect on the nervous centres and none at all on the sensory and vasomotor nerves.

**SERUM THERAPY IN SCARLET FEVER.**—The *British Medical Journal*, May 23, quotes Baginsky's paper in the *Berlin. Klinische Wochenschrift* as to his use of Marmorek's serum obtained from the Pasteur Institute. He first refers to some of the complications of scarlet fever which are due to the streptococcus, and he draws attention to the close relationship between the virus of scarlet fever and the streptococcus. He was not always able to use a sufficient quantity of the serum, and this may perhaps account for some want of success. During four months he has thus treated 57 cases. Nine of these must be deducted, 2 cases were removed too soon from the hospital, 1 died in severe collapse four hours after admission, 1 case was complicated with fracture of the jaw and another with phthisis, and 4 others were still under treatment. Among the remaining 48 cases the cause was unusually favorable in 27. A suppurative otitis only occurred in 4 cases, and in only 1 case was there nephritis. A striking feature was the rapid fall of temperature after the injections. Very exceptionally was there albuminuria, and in only 1 case casts, blood cells, etc. The author gives details of 7 fatal cases; perhaps an insufficient amount of serum was used. In another group of non-fatal cases the patients seemed uninfluenced

by the treatment. In a third group of cases the serum was only used in advanced cases, owing to complications. In 1 case, with ulcerative endocarditis, etc., no effect on the course of the disease was visible. In 4 other cases the results were favorable. In 48 cases there were 7 deaths, namely, 14.9 per cent., the usual mortality during 5 years varying from 22.6 to 34.4 per cent. The death-rate among 238 other cases not treated with serum, and belonging to the same epidemic, amounted to 24.9 per cent. The cases treated with serum were not of a less severe type than the others. The author concludes that Marmorek's antistreptococcus serum is worthy of a further trial in scarlet fever.

#### ANNOUNCEMENTS.

MACMILLAN & Co., 66 Fifth Ave., New York, have just issued:

The Fundus Oculi; with an Ophthalmoscopic Atlas, illustrating its physiological and pathological condition. By W. Adams Frost, F. R. C. S. (4to, extra cloth, gilt top. Price, \$18.00.)

THE SYSTEM OF MEDICINE; by many writers: edited by Thomas Clifford Allbut, University of Cambridge. In 5 vol., med. 8 vo. Vol. I., Prolegomena and Infectious diseases (pp. 977, Price \$5.00), now ready.

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Descriptive circulars can be obtained from the publishers.

J. B. LIPPINCOTT Co., 715 & 717 Market St., Philadelphia, Pa., have just issued their new *Catalogue* of Medical and Surgical Publications. The pamphlet contains 52 pages, and furnishes descriptions of all the standard text and reference books issued by this firm. A complete set of the books offered would constitute an ample library covering all branches of medical science; the average practitioner who wants one or only a few works for each branch can select the best from this list. A copy will be mailed free by the publishers to any physician who will write for it.









